

Release  
in Fall

Region 8



13624

HISTORY

{ T28N R51E S10 }  
6600' NL ; 1980' EL

HUBER #4

Montana / Roosevelt Co.

by: N. Wiser 9-19-02  
Salt Water Disposal Well

WELL HISTORY:

1952 drilled  
(7-22-52 to 10-4-52)

5-22-69 PA'd

9-1-70 Recomplete as Kjr  
injector  
(proposed)

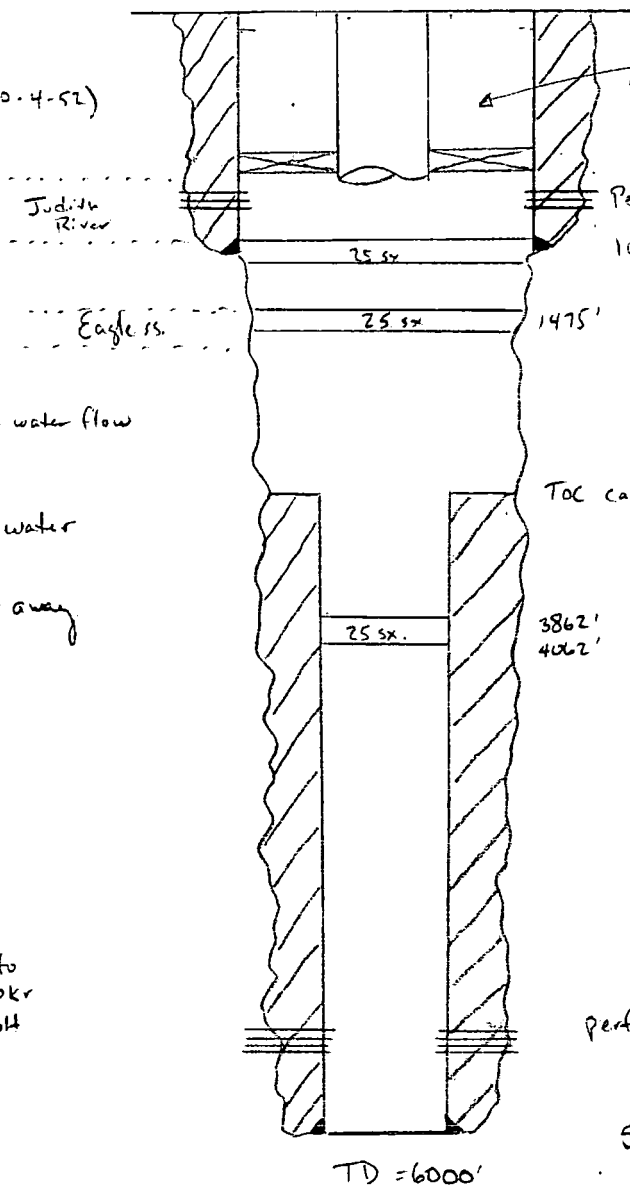
9-28-82 PA Kjr + test for water flow  
(proposed)

due to leaking water  
at Huber #4A  
located 50 feet away

10-18-82 PA Kjr  
(proposed)

8-5-02 PA Kjr  
(proposed)

Sundry proposes to  
release tension pkr  
@ 824' and tooth  
w/ 2 7/8" tbg.



2 7/8" tbg @ 824' (per 8-2-02 sundry)

Note clear if a tbg + pkr was used  
for injection btwn 1970 + 1982.  
(see 9-28-82 sundry: propose to set pkr  
at ± 800' and then test annulus @ 750'.

Perfs: 830' - 850'

10 3/4" 32 1/2# csg set @ 1001' w/ 425 sx (1952)

Assume 12 3/4" hole 1.14 cu. ft./sx

$(3.9010)(425 \text{ sx})(1.14) = 1890' @ 1001'$   
calc TOC = 0'

TOC calc = 2784' (5-22-69 = shot off 5 1/2" @ 3091')

perfs: 5610' - 5788'

5 1/2" 14# csg set @ 6000' w/ 400 sx (1952)

Assume 7 1/2" hole 1.14 cu. ft./sx

$(7.0518)(400 \text{ sx})(1.14) = 3216' @ 6000'$

calc TOC = 2784'

Kjr = cretaceous-aged Judith River

{ T28N R51E S10 }  
660' NL ; 1980' EL

HUBER #4  
Montana / Roosevelt Co.

by: N. Wiser 9-19-02  
Salt Water Disposal Well

WELL HISTORY:

1952 drilled  
(7-22-52 to 10-4-52)

5-22-69 PA'd

9-1-70 Recomplete as Kjr  
injector  
(proposed)

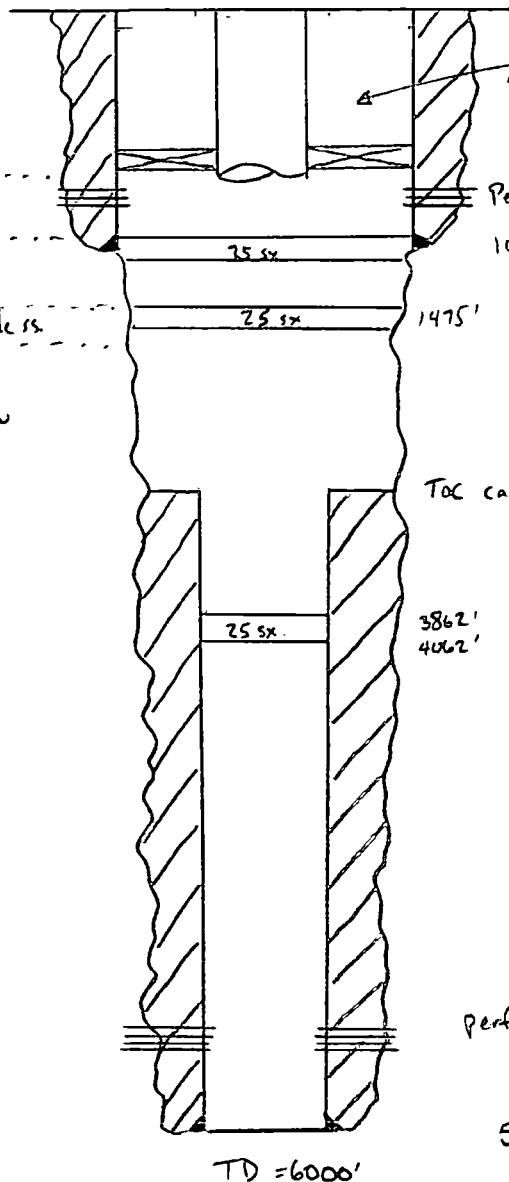
9-28-82 PA Kjr + test for water flow  
(proposed)

due to leaking water  
at Huber #4A  
located 50 feet away

10-18-82 PA Kjr  
(proposed)

8-5-02 PA Kjr  
(proposed)

Sunday proposes to  
release tension pkr  
@ 824' and Toolt  
w/ 2 7/8" tbg.



2 7/8" tbg @ 824' (per 8-2-02 sundy)

Note clear if a tbg + pkr was used  
for injection btwn 1970 + 1982.  
(see 9-28-82 sundy: propose to set pkr  
at ± 800' and then test annulus @ 750'.

Perfs: 830' - 850'

10 7/4" 32 7/8" # csg set @ 1001' w/ 425 sx (1952)

Assume 12 3/4" hole 1.14 cu. ft/sx

$(3.9010)(425 \text{ sx})(1.14) = 1890' @ 1001'$   
calc TOC = 0'

TOC calc = 2784' (5-22-69: shot off 5 1/2" @ 3091')

3862'  
4062'

perfs: 5610' - 5788'

5 1/2" 14# csg set @ 6000' w/ 400 sx (1952)

Assume 7 1/2" hole 1.14 cu. ft./sx

$(7.0518)(400 \text{ sx})(1.14) = 3216' @ 6000'$

calc TOC = 2784'

Kjr = cretaceous-aged Judith River

EPU SALT WATER STATION NO. 4-D

SUPPLEMENT TO WELL HISTORY

Shut down pumps - started 1,000 gallons produced water with PEN-5 penetrating agent and let soak 30 mins. on perforations. Pumped 500 gallons 28% hydrochloric acid with additives. Let soak on perforations for 20 mins.. Pumped 500 gallons more acid with additives in perforations. Let soak 20 mins.. Started pumping 1,000 gallons produced water with PEN-5 penetrating agent. Let soak 30 mins. on perforations. Pumped 500 gallons 28% hydrochloric acid with additives. Let soak on perforations 20 mins.. Pumped remaining 500 gallons acid with additives and let soak 20 mins.. Started pumps.

Additives Used:        12 Gallons Inhibitor  
                         24 Gallons PEN-5 (penetrating agent)  
                         50# FB-2 Citric Acid Crystals

Before Acid Job - 820 PSY  
After Acid Job - 820 PSY

640

A.F.E. No. 5-1521-10  
(Supplement No. 1)

MURPHY OIL CORPORATION  
AUTHORITY FOR EXPENDITURE - NO. 4 SWD STA.  
NW SE SEC. 10 T28N-R51E - ROOSEVELT COUNTY, MONTANA

CHANGE OUT DISPOSAL PUMP

PROPOSAL & JUSTIFICATION

This A.F.E. is over-expended approximately \$10,000 gross. This over-expenditure is primarily due to increased installation costs brought about by abnormal vibration in the Peerless Pumps while testing.

ESTIMATED COST

	<u>ORIGINAL AFE'D</u>	<u>REVISED</u>
Pump & Auxiliary Equipment	\$ 70,000	\$ 70,000
Labor, Material & Trucking to Inst.	5,000	15,000
	<u>\$ 75,000</u>	<u>\$ 85,000</u>

TOTAL SUPPLEMENTAL ESTIMATE ----- \$10,000

APPORTIONMENT OF TOTAL ESTIMATED COSTS

Murphy Oil Corporation	31.448470%	\$ 3,145
Placid Oil Corporation	33.545035%	3,355
Phillips Petroleum Company	16.335860%	1,633
Exxon Company, U.S.A.	16.335860%	1,633
Munoco Company	2.096565%	210
C. F. Lundgren	0.238210%	24

\* 88465. spent  
5-13-76

APPROVAL OF EXPENDITURE

Requested:

APPROVED:

B. G. MELEAR

3/30/76  
Date

Chas. R. Simpson 3/30/76  
Date

W. D. Bull 3/30/76  
Date

Work completed  
4-23-76 at  
cost of 88465

MURPHY OIL CORPORATION  
 AUTHORITY FOR EXPENDITURE - NO. 4 SWD STA.  
 NW SE SEC. 10 T28N R51E - ROOSEVELT COUNTY, MONTANA

CHANGE OUT DISPOSAL PUMP

PROPOSAL & JUSTIFICATION

It is proposed to change out the Oilwell P-346 Salt Water Disposal Pump (5000 BPD capacity) with a disposal pump of 15,000 BPD capacity.

Before any increase in production can be realized in the south end of the East Poplar Unit the salt water disposal capabilities must be increased. There are presently two salt water disposal stations in the south end of the Unit, namely EPU #8-D and EPU #80-D, with a total capacity of 10,000 BPD. By increasing the disposal capacity of No. 8-D, seven "C" and "A" zone flowing wells could be opened for increased total fluid recovery of 3,000-5,000 BPD. This increased flow will be high water cut (approximately 97%) but will make it possible to add 100-150 BOPD of low lifting cost oil. This proposed salt water disposal enlargement is also in an area where there are potentially three additional Reda installations. The additional three Redas are expected to make for an increase of about 450 BOPD. This increase in disposal capacity is necessary before the production can be increased as shown above. Additional justification for this salt water disposal expansion is covered in the accompanying recommendation entitled "Production Improvement Project-East Poplar Unit".

ESTIMATED COST

Pump & Auxiliary Equipment	\$70,000
Labor, Material & Trucking to Install	<u>5,000</u>
<b>TOTAL ESTIMATED COST</b>	<b>\$75,000</b>

APPORTIONMENT OF TOTAL ESTIMATED COST

Murphy Oil Corporation	31.448470	23,590
Placid Oil Corporation	33.545035	25,160
Phillips Petroleum Company	16.335860	12,250
Exxon Company, U.S.A.	16.335860	12,250
Munoco Company	2.096565	1,570
C. F. Lundgren	0.238210	180

APPROVAL OF EXPENDITURE

Requested:

APPROVED:

W. G. BROWN

7-10-75  
Date

John D. Johnson 7/14/75  
Date

W. B. Butler 7/24/75  
Date

Date



REC. PROD. NOV 1 1976

A.F.E. No. 6-1549-10

MURPHY OIL CORPORATION  
AUTHORITY FOR EXPENDITURE - EAST POPLAR UNIT NO. 4-D  
NW SE Section 10, T28N, R51E, Roosevelt County, Montana  
(Acidize Well)

It is proposed to acidize the Dakota Sand perforations, 3195-3255', 3335-3400', and 3430-3445', with 3000 gallons of 15% acid with 10% FELA.

The injection pressure is now 840#, which exceeds the working pressure of our pumps with the size plungers being used. The above treatment should lower our injection pressure to approximately 350#.

ESTIMATED COST

3000 Gallons Acid and Services  
Supervision

TOTAL ESTIMATED COST

\$ 3,190 3527  
\$ 100 7/62  
\$ 3,290

APPORTIONMENT OF TOTAL ESTIMATED COST

Murphy Oil Corporation	31.448470%	\$ 1,035	774 (241)
Placid Oil Company	33.545035%	\$ 1,104	848 (256)
Exxon Company, U.S.A.	16.335860%	\$ 537	413 (124)
Phillips Petroleum Company	16.335860%	\$ 537	413 (124)
Munoco Company	2.096565%	\$ 69	53 (16)
C. F. Lundgren	.238210%	\$ 8	6 (2)

APPROVAL OF EXPENDITURE

Requested by:

Approved by

Billy D. Melear  
Billy D. Melear

10-29-76  
Date

A. W. Simpson  
A. W. Simpson

11/1/76  
Date

Write  
supplement

BGM/sb  
October, 1976

A.F.E. NO. 6-1552-10

MURPHY OIL CORPORATION  
AUTHORITY FOR EXPENDITURE - EAST POPLAR UNIT SWD STATION NO. 4  
NW SE SECTION 10, T28N, R51E, ROOSEVELT COUNTY, MONTANA

PROPOSAL & JUSTIFICATION

Due to crankshaft breaking considerable damage was done to the Oilwell 346-P Salt Water Pump at this station. It is proposed to replace the crankshaft and all damaged gears.

Some of the wells are shut-in and others cut back in the South area of the Unit because the pump can not handle produced water with this pump down.

ESTIMATED COST

Repair Parts	\$ 6,800
Labor	1,180
Supervision	200
<b>TOTAL ESTIMATED COST</b>	<b>\$ 8,180</b>

*Cost \$92,91*

APPORTIONMENT OF TOTAL ESTIMATED COST

Murphy Oil Corporation	31.448470%	\$ 2,572
Acid Oil Company	33.545035%	2,744
Exxon Company, U.S.A.	16.335860%	1,337
Phillips Petroleum Company	16.335860%	1,337
Amoco Company	2.096565%	171
F. Lundgren	.238210%	19

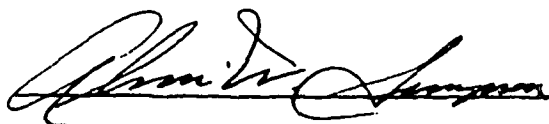
APPROVAL OF EXPENDITURE

Requested By:

APPROVED BY:

WILLY G. MELEAR

11-24-76  
Date



11-29-76  
Date

l:cg  
(11-29-76)

C)

MURPHY OIL CORPORATION  
 AUTHORITY FOR EXPENDITURE - EAST POPLAR UNIT SWD STATION NO. 4  
NW SE SECTION 10, T28N, R51E, ROOSEVELT COUNTY, MONTANA

is well was treated in October, 1976, with 3,000 Gallons 15% HCL Acid preceded with 300 Gallons Solvent to clean face of formation. About the only noticeable pressure drop observed during the job was during the time solvent was being pumped into formation.

Injection pressure has now reached 900# with Peerless pumping approximately 9,000 GPD. Recommend we treat the Dakota formation perforations, 3195-3255', 3335-3400', 3400-3445' by Dowell as follows:

1,000 Gallons produced water with F-40 (surfactant).  
 500 Gallons 28% acid (with additives) - soak in perforations 15 minutes.  
 500 Gallons 28% acid (with additives) - soak in perforations 15 minutes.  
 1,000 Gallons produced water with F-40 (surfactant).  
 500 Gallons 28% acid (with additives) - soak in perforations 15 minutes.  
 500 Gallons 28% acid (with additives) - soak in perforations 15 minutes.  
 Start pump.

this treatment will reduce our pressure to 650# PSI, our injection rate will increase to approximately 11,500 BFPD. Packing problems and high associated costs will be reduced.

ESTIMATED COST

Well Services-----	\$ 2,975
Supervision-----	100
<b>TOTAL ESTIMATED COST-----</b>	<b>\$ 3,075</b>

APPORTIONMENT OF TOTAL ESTIMATED COST

Murphy Oil Corporation	31.448470%	\$ 967
Midcon Energy Company	33.545035%	1,032
Continental Company, U.S.A.	16.335860%	502
Phillips Petroleum Company	16.335860%	502
Occo Company	2.096565%	65
F. Lundgren	.238210%	7

APPROVAL OF EXPENDITURE

Requested:

APPROVED:

W. G. MELEAR

3-21-77  
Date

*Alvin D. Anderson*

3/25/77  
Date

2450

JUL 20 1981

A.F.E. No. 1-1509-10

MURPHY OIL CORPORATION  
AUTHORITY FOR EXPENDITURE  
EAST POPLAR UNIT 4-D  
SWD STATION NO. 4, LOCATED NW SE SEC. 10-T28N-R51E  
ROOSEVELT COUNTY, MONTANA - EAST POPLAR FIELD

The 300 Bbl. fiberglass tank at 4-D came apart and collapsed from excess heat. It is proposed to put in a 400 Bbl. steel welded tank coated with Engard 480 coating.

ESTIMATED COST

Tank 400 Bbl. - Engard 480 coating	\$7,800
Roustabout Labor	6,500
Connections	1,500
Water Tank	500
Materials to rebuild building	800
Electrician	1,000
Total Estimated Cost	\$18,100

APPORTIONMENT OF TOTAL ESTIMATED COST

Murphy Oil Corporation	31.448470%	\$5,692
Placid Oil Company	33.545035%	6,072
Exxon Company U.S.A.	16.335860%	2,957
Phillips Petroleum Company	16.335860%	2,957
Munoco Company	2.096565%	379
C. F. Lundgren	.238210%	43

APPROVAL OF EXPENDITURE

Requested by:

Raymond Reede  
Raymond Reede

7-16-81  
Date

Approved by:

A. W. Simpson 7/20/81  
A. W. Simpson Date

R/bv  
ly 16, 1981

DATE JOB COMPLETED

APPROXIMATE COST

MURPHY OIL CORPORATION , REC. PROD. FEB 15 1982  
 AUTHORITY FOR EXPENDITURE  
 EAST POPLAR UNIT 4-D  
 SWD STATION NO. 4, LOCATED NW SE SEC. 10-T28N, R51E  
 ROOSEVELT COUNTY, MONTANA - EAST POPLAR FIELD

The Roustabout labor, Connections, and Water Tank were more than anticipated.

COST

	Original A.F.E.	Actual Cost	Supplement No.1
Tank 400 Bbl. & Coat	\$7,800	\$9,935	\$2,135
Roustabout Labor	\$6,500	\$8,460	\$1,960
Connections	\$1,500	\$4,680	\$3,180
Water Tank	\$ 500	\$1,109	\$ 609
Materials	\$ 800	\$ 196	\$(604)
Electrician	\$1,000	\$ 0	\$(1000)
Total Cost	\$18,100	\$24,380	\$6,280

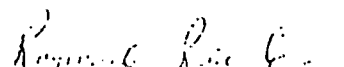
APPORTIONMENT OF TOTAL ESTIMATED COST

Murphy Oil Corporation	31.448470%	\$5,692	\$7,667	\$1,975
Placid Oil Company	33.545035%	\$6,072	\$8,178	\$2,106
Exxon Company, U.S.A.	16.335860%	\$2,957	\$3,983	\$1,026
Phillips Petroleum Co.	16.335860%	\$2,957	\$3,983	\$1,026
Munoco Company	2.096565%	\$ 379	\$ 511	\$ 132
C.F. Lundgren	.238210%	\$ 43	\$ 58	\$ 15

APPROVAL OF EXXPENDITURE

Requested by:

Approved By:

  
 Raymond Reede

2-10-82  
 Date

  
 A.W. Simpson

2/15/82  
 Date

RR/bv  
 February 9, 1982



Form  
Billings  
or Shelby

Geological Survey  
RECEIVED

Abandoned to P&H  
(SUBMIT IN QUADRUPPLICATE)

TO

AUG 15 1969

Billings, Montana

OIL AND GAS CONSERVATION COMMISSION  
OF THE STATE OF MONTANA  
BILLINGS OR SHELBY

NOTICE!  
THIS FORM BECOMES A  
PERMIT WHEN STAMPED  
APPROVED BY AN AGENT  
OF THE COMMISSION.

SUNDRY NOTICES AND REPORT OF WELLS

Notice of Intention to Drill		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	X
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

May 22, 1969

Following is a ~~notice of intention to do work~~  
report of work done } on land ~~owned~~  
leased }

LEASE Huber

MONTANA  
(State)

Roosevelt

(County)

E. Poplar  
(Field)

Well No. 4 10 28N 51E  
(m. sec.) (Township) (Range) (Meridian)

The well is located 660 ft. from { N } line and 1980 ft. from { E } line of Sec. 10

(Locate accurately on Plat on back of this form the well location, and show lease boundary.)

The elevation of the derrick floor above the sea level is 2091 (KB)

READ CAREFULLY

DETAILS OF PLAN OF WORK

READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work, particularly all details results Shooting, Acidizing, Fracturing.)

DETAILS OF WORK  
RESULT

- 7/29/66 Tagged shale plug at 4062'. Ran 25 sack cement plug from 4062' - 3862'.  
7/30/66 Tagged cement plug at 3862'.  
8/ 1/66 Shot off 5 1/2" casing at 3091' and pulled 103 joints.  
8/ 2/66 Set 25 sack cement plug on top of Eagle sand at 1475'.  
8/ 5/66 Set 25 sack plug in and out of bottom of 10 3/4 surface at 460' and 5 sack cement plug on top of surface pipe with regulation marker.

Approved subject to conditions on reverse of form

Company E. A. Columbus, Jr.

Date AUG 12 1969

By D. J. Law

By J. R. HUE, SUPERVISOR

Title Agent

District Office Agent

Address 220 C. A. Johnson Building

(LOCATION INCORPORATED & APPROVED)

Denver, Colorado 80202

NOTE: Reports on this Form to be submitted to the District Agent for Approval in Quadruplicate.

OVER

(SUBMIT IN QUADRUPPLICATE)

TO

OIL AND GAS CONSERVATION COMMISSION  
OF THE STATE OF MONTANA  
BILLINGS OR SHELBY

## SUNDRY NOTICES AND REPORT OF WELLS

## NOTICE

THIS FORM BECOMES A  
PERMIT WHEN STAMPED  
APPROVED BY AN AGENT  
OF THE COMMISSION.

Notice of Intention to Drill		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well		Report of Fracturing	
" " " " Convert to SWD Well <input checked="" type="checkbox"/>			

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

September 1, 1970

Following is a { notice of intention to do work } on land { owned } described as follows:  
                  { report of work done } leased

LEASE Huber

MONTANA  
(State)Roosevelt  
(County)E. Poplar  
(Field)

Well No. 4 (NW 1/4) 10 (m. sec.) 28 N. 51 E.  
(Township) (Range) (Meridian)

The well is located 660 ft. from { N } line and 1980 ft. from { E } line of Sec. 10

LOCATE ACCURATELY ON PLAT ON BACK OF THIS FORM THE WELL LOCATION, AND SHOW LEASE BOUNDARY

The elevation of the derrick floor above the sea level is 2091' (KB)

## READ CAREFULLY

## DETAILS OF PLAN OF WORK

## READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important proposed work, particularly all details results Shooting, Acidizing, Fracturing.)

DETAILS OF WORK  
RESULT

See Attached Rider for Details.

## RIDER

It is proposed to convert this abandoned well to salt water injection service in the Judith River formation at about 840' to supplement the present Judith River disposal facility.

Present Status

F & A August, 1966. 10-3/4" - 32.75# surface casing set at 1001' (KB) and cemented with 475 sacks. Abandoned with a 25 sack plug in and out of the 10-3/4" casing shoe and a 5 sack plug at the surface with regulator marker. (Other plugs are set below the 10-3/4" shoe)

Proposed Work

Drill out surface plug. Run tubing to top of cement plug at shoe of 10-3/4", check depth and circulate casing with water. If depth of plug is satisfactory, pull tubing and run correlation log and perforate Judith River from approximately 840' to 860' with 1 jet shot per foot. 20' above perforations and



NOTICE  
THIS FORM BECOMES A  
PERMIT WHEN STAMPED  
AND APPROVED BY AN AGENT  
OF THE BOARD.

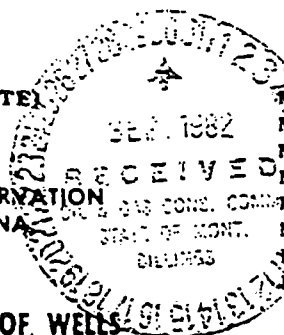
(SUBMIT IN QUADRUPPLICATE)

TO

BOARD OF OIL AND GAS CONSERVATION  
OF THE STATE OF MONTANA

BILLINGS OR SHELBY

SUNDRY NOTICES AND REPORT OF WELLS



MAC 36-3.18(10)-S18020  
MAC 36-3.18(10)-S18030  
MAC 36-3.18(10)-S18140  
MAC 36-3.18(10)-S18170  
MAC 36-3.18(10)-S18200  
MAC 36-3.18(10)-S18310  
MAC 36-3.18(10)-S18330  
MAC 36-3.18(14)-S18380

Notice of Intention to Drill		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	
Notice of Intention to Test Water Shut-off	X	Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well	X	Report of Fracturing	

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

September 28, 1982

Following is a notice of intention to do work on land ~~owned~~ leased described as follows:

LEASE Huber

MONTANA Roosevelt East Poplar  
(State) (County) (Field)

Well No. 4 NE1/4 Section 10 28 North 51 East  
(m. sec.) (Township) (Range) (Meridian)

The well is located 660 ft. from N line and 1980 ft. from E line of Sec. 10

LOCATE WELL SITE ACCURATELY ON PLAT ON BACK OF THIS FORM.

The elevation of the ground or K.B. above the sea level is 2091' KB

READ CAREFULLY

DETAILS OF PLAN OF WORK

READ CAREFULLY

(State names of and expected depths in objective sands; show size, weights, and lengths of proposed casings, cementing points, and all other important proposed work, particularly all details of Shooting, Acidizing, Fracturing.)

DETAILS OF WORK  
RESULT

The subject well is perforated in the Judith River formation at 830' - 850' as a shut in salt water disposal well. The Huber #4A, located 50 feet east of the subject well, has water leaking into its cellar.

The water is believed to be either entering the well at the perforations and flowing up the tubing-casing annulus through a cement basket with a leak in the casing or up the tubing and out a leak in the tubing and casing, or up a channel behind the surface pipe on either the Huber #4 or #4A from some outside source.

It is proposed to set a packer at 1800' and check tubing for flow. Pressure test annulus to 750 psi for 15 minutes. Locate casing leak if necessary. Squeeze perforations with 100 sxs Class "G" cement and casing leak with same if necessary. Cut off casing 2 feet below plow depth and set 10 sack surface plug.

Approved subject to conditions on reverse of form

Company GRACE PETROLEUM CORPORATION

Date Oct 13, 1982

By Donald C. Smith

By W. S. Adolph District Office Agent

Title Senior Operations Engineer  
Three Park Central, Ste. 333, 1515 Arapahoe  
Address Denver, Colorado 80202

BOARD USE ONLY  
API WELL NUMBER

NOTE:—Reports on this form to be submitted to the appropriate District for approval  
DRILLING PERMIT EXPIRES 90 DAYS FROM DATE OF APPROVAL. UPON WRITTEN  
REQUEST PRIOR TO EXPIRATION DATE, ONE 90 DAY EXTENSION MAY BE GRANTED.

(SUBMIT IN QUADRUPLICATE)

TO

BOARD OF OIL AND GAS CONSERVATION  
OF THE STATE OF MONTANA

BILLINGS OR SHELBY

## SUNDRY NOTICES AND REPORT OF WELLS

NOTICE  
THIS FORM BECOMES A  
PERMIT WHEN STAMPED  
APPROVED BY AN AGENT  
OF THE BOARD.

MAC 36-3.18(10)-S18020  
MAC 36-3.18(10)-S18030  
MAC 36-3.18(10)-S18140  
MAC 36-3.18(10)-S18170  
MAC 36-3.18(10)-S18200  
MAC 36-3.18(10)-S18310  
MAC 36-3.18(10)-S18330  
MAC 36-3.18(14)-S18380

Notice of Intention to Drill		Subsequent Report of Water Shut-off	
Notice of Intention to Change Plans		Subsequent Report of Shooting, Acidizing, Cementing	
Notice of Intention to Test Water Shut-off		Subsequent Report of Altering Casing	
Notice of Intention to Redrill or Repair Well		Subsequent Report of Redrilling or Repair	
Notice of Intention to Shoot, Acidize, or Cement		Subsequent Report of Abandonment	
Notice of Intention to Pull or Alter Casing		Supplementary Well History	
Notice of Intention to Abandon Well (SWD) X		Report of Fracturing	

(Indicate Above by Check Mark Nature of Report, Notice, or Other Data)

October 12,

1982

Following is a notice of intention to do work on land ~~owned~~ leased described as follows:

LEASE Huber

MONTANA  
(State)Roosevelt  
(County)East Poplar  
(Field)Well No. 4 10 28 North 51 East  
(m. sec.) (Township) (Range) (Meridian)

The well is located 660 ft. from N line and 1980 ft. from E line of Sec. 10

LOCATE WELL SITE ACCURATELY ON PLAT ON BACK OF THIS FORM

The elevation of the ground or K.B. above the sea level is 2091' KB

READ CAREFULLY

DETAILS OF PLAN OF WORK

READ CAREFULLY

(State names of and expected depths to objective sands; show size, weights, and lengths of proposed casings, cementing points, and all other important proposed work, particularly all details of Shooting, Acidizing, Fracturing.)

DETAILS OF WORK  
RESULT

Grace Petroleum Corporation plans to plug and abandon well #4 as follows:

- 1) Pull tubing & 30' cement plug or cut tubing @ 700'.
- 2) Set packer as close to perforations as possible. (Perfs @ 830-850').
- 3) Check for fluid entry up tubing. Pressure test casing to 750#. Locate leak if necessary.
- 4) Squeeze perfs with 100 sacks Class "G" cement.
- 5) Squeeze casing leak if necessary with 100 sxs Class "G" cement.
- 6) Cut casing 2' below plow depth & clean up location.

(7) Set 5' plug in top of casing

Approved subject to conditions on reverse of form

Date OCT 25 1982

By Blaine Humphrey  
District Office Agent Title

Company GRACE PETROLEUM CORPORATION

By Donald C. Smith  
Donald C. Smith

Title Senior Operations Engineer

Address 3 Park Central, Ste. 333,  
1515 Arapahoe Street

Denver, CO 80202

BOARD USE ONLY  
API WELL NUMBERNOTE:—Reports on this form to be submitted to the appropriate District for approval  
DRILLING PERMIT EXPIRES 90 DAYS FROM DATE OF APPROVAL. UPON WRITTEN  
EXTENSION ONE 90 DAY EXTENSION MAY BE GRANTED.



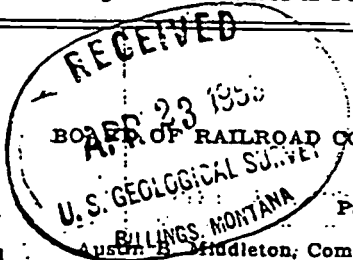
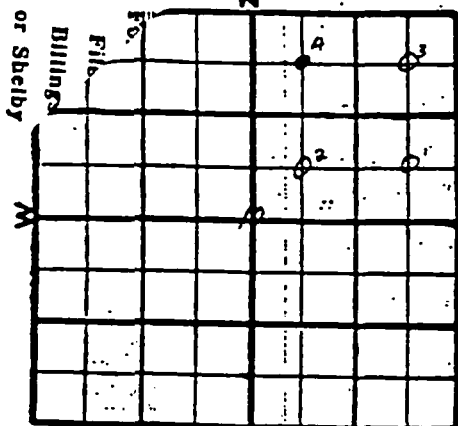
Property

CORRECTLY

This Log to Be Rendered in Four Copies

Form 297-5M-4-52

*Replacement made*

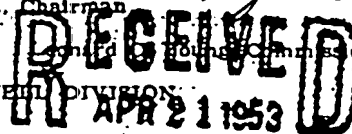


Lease Huber

Paul T. Smith, Chairman

Austin S. Middleton, Commissioner

OIL AND GAS WELL DIVISION



# LOG OF OIL OR GAS WELL

Company C. C. Thomas Address 208 Statpleton Bldg., Billings, Mont.

Lessor or Tract Huber Field Poplar State MONTANA

Well No. 1 Sec 10 T 28 N R 51 E Meridian County Roosevelt

Location 660 ft. { S. } of north Line and 1980 ft. { W. } East Line of Sec. Elevation (Derrick floor relative to sea level)

The information given herewith is a complete and correct record of the well and all work done thereon so far as can be determined from all available records.

Signed s/ ROBERT D. SNYDER

Title Petroleum Engineer

Address Billings, Montana

Date October 6, 1952

The summary on this page is for the condition of the well at above date.

Commenced drilling July 22, 1952 Finished drilling October 4, 1952

Oil or Gas Sands or Zones  
(Denote gas by G)

Important Water Sands

No. 1, from 5606 to 5615  
No. 2, from 5624 to 5640  
No. 3, from 5780 to 5788  
No. 4, from \_\_\_\_\_ to \_\_\_\_\_  
No. 5, from \_\_\_\_\_ to \_\_\_\_\_

No. 1, from \_\_\_\_\_ to \_\_\_\_\_  
No. 2, from \_\_\_\_\_ to \_\_\_\_\_  
No. 3, from \_\_\_\_\_ to \_\_\_\_\_  
No. 4, from \_\_\_\_\_ to \_\_\_\_\_  
No. 5, from \_\_\_\_\_ to \_\_\_\_\_

## CASING RECORD

Size Casing	Weight per Foot	Threads Per Inch	Make	Amount	Kind of Shoe	Cut & Pulled From	Perforated		Purpose
							From	To	
<u>5 1/2</u>	<u>14</u>	<u>8</u>	<u>JUL</u>				<u>5610</u>	<u>5616</u>	
<u>5 1/2</u>	<u>14</u>	<u>8</u>	<u>JUL</u>				<u>5626</u>	<u>5634</u>	
<u>Model D Baker Production Packer at 5755</u>									
<u>5 1/2</u>	<u>14</u>	<u>8</u>	<u>JUL</u>				<u>5780</u>	<u>5788</u>	
<u>Plug Bak 5820 w/Baker Bridge Plug &amp; two sacks cement</u>									

## CASING OR TOOLS LOST OR SIDETRACKED

From \_\_\_\_\_ to \_\_\_\_\_ Description \_\_\_\_\_  
From \_\_\_\_\_ to \_\_\_\_\_ Description \_\_\_\_\_  
From \_\_\_\_\_ to \_\_\_\_\_ Description \_\_\_\_\_

## MUDDING AND CEMENTING RECORD

MARK

General Rules and Regulations, and amendments thereto, as well as regulations prescribed in lieu thereof. All work must be done in conformity with the regulations and amendments thereto, as well as regulations prescribed in lieu thereof.

Size	Cement	Halliburton	Amount of Mud Used
10 3/4 1001	425	Halliburton	
5 1/2 6000	400	Halliburton	

## PLUGS AND ADAPTERS

Heaving plug—Material \_\_\_\_\_ Length \_\_\_\_\_ Depth Set \_\_\_\_\_

Adapters—Material \_\_\_\_\_ Size \_\_\_\_\_

## SHOOTING RECORD

Size	Shell Used	Explosive Used	Quantity	Date	Depth Shot	Depth Cleaned Out
Acidized w/500 gal.	thru	Perf	5610-16, 5626-34			
Acidized w/1000 gal.	thru	Perf	5780-88			

## TOOLS USED

Rotary tools were used from \_\_\_\_\_ feet to \_\_\_\_\_ feet, and from \_\_\_\_\_ feet to \_\_\_\_\_ feet

Cable tools were used from \_\_\_\_\_ feet to \_\_\_\_\_ feet, and from \_\_\_\_\_ feet to \_\_\_\_\_ feet

## DATES

October 5, 1952 Put to producing October 5, 1952

The production for the first 24 hours was 270 barrels of fluid of which 99 % was oil; \_\_\_\_\_ % emulsion;

1 % water; and \_\_\_\_\_ % sediment.

10/64" choke 450# flowing pressure.

If gas well, cu. ft. per 24 hours \_\_\_\_\_

Rock pressure, lbs. per sq. in. \_\_\_\_\_

Gallons gasoline per 1,000 cu. ft. of gas \_\_\_\_\_

## EMPLOYEES

John Burns Driller. John Rene Driller.

Nelson Driller. M.R. Wagner Drig. Co. Driller.

## HISTORY OF OIL OR GAS WELL

It is of the greatest importance to have a complete history of the well. Please state in detail the dates of redrilling, together with the reasons for the work and its results. If there were any changes made in the casing, state fully, and if any casing was "side-tracked" or left in the well, give size and location. If the well has been dynamited, give date, size, position, and number of shots. If plug or bridge were put in to test for water, state kind of material used, position, and results of pumping or bailing.

## FORMATION RECORD

From	To	Total Feet	Formation
1003	1003	1003	Surface gravel & shale
2915	2915	1912	Shale
3000	3000	85	Shale and Shells
3082	3082	82	Shale
3130	3130	18	Shale and Stks, sand
3283	3283	253	Shale and shells
3312	3312	29	Shale
3843	3843	531	Shale and sand shells
	3945	102	Shale

SERVICE & TESTING



JOB TICKET  
15640

Trk. Operator  
H. G. GENSON  
Riggers BAKKEDAH  
MARMON & SEXTON  
Legal  
Description SEC 10, Twp. 28N 51E

GO WIRELINE SERVICES  
a division of Gearhart-Owen Industries, Inc.  
P. O. BOX 1258 / FORT WORTH, TEXAS 76101

Charge to Murray Oil Corp.  
Invoice  
Address  
City  
Lease and Well no. F.P. 21 4D  
Field East Roper County Roosevelt  
Job No. 6028 State Texas

Invoice No.  
Invoice Date  
Customer's Order No.  
Date Job Performed 1-20-78  
Operating William  
Base

#### CONDITIONS OF THIS CONTRACT

##### TO GO WIRELINE SERVICES.

You are hereby requested to furnish the service and materials and equipment herein set forth upon the following terms and conditions, to wit:  
The undersigned, as customer, agrees to pay you for the services and/or materials ordered hereunder at the office of Go Wireline Services, Fort Worth, Texas. Should any account not be paid within the term fixed by the invoice, interest will be charged at the rate of ten per cent (10%) per annum from date of such invoice.  
In the event you employ an attorney to enforce any claims of indebtedness against the undersigned customer, said customer agrees to pay all costs of collection and reasonable attorney's fees which, in no event, shall be less than the sum of \$75.00.  
The above described work shall be performed by you as an independent contractor. However, it is understood and agreed that you do not guarantee the results of your service and shall not be liable for injury to persons or to property of well owners and/or customers unless caused by your willful negligence, this provision applying, but not limited to, subsurface damage and surface damage arising from subsurface damage. Well owner and/or customers shall be responsible for and secure you against any liability for reservoir loss or damage or personal or property damage arising from a well blowout, unless such loss or damage is caused by your willful negligence. The well owner or drilling company will pay for the actual cost of replacing or repairing the well service equipment, or any part thereof, if same should be lost or damaged while being used in performing the work on the above described well.  
Should any of your instruments, tools, or equipment be lost or destroyed in the rendition of your service, customer agrees to use all reasonable diligence and facilities available to recover the same, and customer agrees to reimburse you for the reasonable value of any instrument, tools, or other personal property that cannot be recovered within (60) days, or for the cost of replacing any damage to items recovered.  
Customer agrees that all depth measurements shall be made by it or its employees, and shall be supervised by customer or its employees.  
Customer certifies that it is the owner of the well on which the work herein ordered is to be done or that it has the full right and authority to order such work done on such wells; and that the well in which the work is to be done by you is in proper and suitable condition for the performance of said work.  
Customer further agrees that the terms and conditions herein set forth constitute the entire agreement and that no employee of your company is authorized to alter the terms hereof. I have read and understand the terms of this agreement and represent that I am authorized to sign the same as agent of customer.

Murray Oil Corp.

Customer

William N. Campbell

Agent

DESCRIPTION	PRICE	AMOUNT
(1) Running Pump Operation Log from 500 to 952 overcoming 2 changes (7 min) 1500 ft change (7 min)	300.00 340.00	
(2) Perforate with 3.5 Blower from 830 to 880 50 ft. P. & L. on 1st 2nd hole.	2730.00	
(3) Perforate & Submerge Service 0-1000 P.S.I.	125.00	
	3245.00	

REMARKS

PRICES SHOWN ARE ESTIMATED AND SUBJECT TO CHANGE BY ACCOUNTING DEPARTMENT.

## DB LOG

**JOB TYPE**

Acid

TICKET NO. 043677

PAGE NO

DATE 0-20-76

**CUSTOMER**

**CUSTOMER**



IRTON SERVICES  
SUMMARY

HALLIBURTON DIVISION  
HALLIBURTON LOCATION  
DENVER COLO  
Glendive, M.

BILLED ON  
TICKET NO. 043677

Well Name: Poplar  
SEC. 10 TWP. 28<sup>N</sup> RANG. 51<sup>E</sup> COUNTY Roosevelt STATE Mont  
Dakota  
KNESSE FROM TO  
L. DPD. WATER DPD. GAS MCFD  
MIL. DPD. WATER DPD. GAS MCFD  
E. MUD TYPE MUD WT.  
SET AT  
MP. PRESSURE

	NEW USED	SIZE	FROM	TO	WEIGHT	MAXIMUM PSI ALLOWABLE
CASING	4	5 1/2	KB	3404	17#	
LINER						
TUBING	4	2 3/8	KB	3300		
OPEN HOLE						TOTAL DEPTH:
PERFORATIONS			3300	3400		SHOTS/FT.
PERFORATIONS						SHOTS/FT.
PERFORATIONS						SHOTS/FT.

TOOLS AND ACCESSORIES		
TYPE AND SIZE	QTY.	MAKE

JOB DATA		PERSONNEL AND SERVICE UNITS	
CALLER OUT	ON LOCATION	JOB STARTED	JOB COMPLETED
DATE 10-30	DATE 10-30	DATE 10-30	DATE 10-30
TIME 0300	TIME	TIME	TIME

NAME	UNIT NO. & TYPE	LOCATION
Brphy	3905	Glendive
Detmers	73-TA	Glendive
Heinrich	7921	Glendive
	Acid	Glendive

MATERIALS  
WATER DENSITY LD/GAL API  
DENSITY LD/GAL API  
SIZE LD  
SIZE LD  
3000 GAL 15 HCH  
GAL %  
GAL %  
GAL IN  
GAL IN  
TYPE GAL-LB IN  
TYPE GAL-LB IN  
TYPE GAL-LB IN  
TYPE GAL-LB IN  
TYPE GAL-LB  
TYPE QTY  
1 MAT. 3091 FE-7A  
4 FE-7

DEPARTMENT Cement  
DESCRIPTION OF JOB  
Acidizing Disposal Well  
JOB DONE THRU TUBING ☒ CASING ☐ ANNULUS ☐ TDS/ANN. ☐  
CUSTOMER REPRESENTATIVE X  
HALLIBURTON OPERATOR John Brphy  
COPIES REQUESTED

SIZE	TYPE	API CLASS	BRAND	BULK SACKED	ADDITIVES	YIELD CU.FT./SK.	MIXED LBS./GAL.

PRESSURES IN PSI  
DISPLACEMENT  
MAXIMUM  
FRACTURE GRADIENT  
HYDRAULIC HORSEPOWER  
AVAILABLE AVERAGE RATES IN BPM  
DISPL. OVERALL  
CEMENT LEFT IN PIPE  
REASON

SUMMARY  
PREFLUSH: BBL-GAL  
LOAD & BKG: BBL-GAL  
TREATMENT: BBL-GAL  
CEMENT SLURRY: BBL-GAL  
TOTAL VOLUME: BBL-GAL  
VOLUMES  
TYPE  
PAD: BBL-GAL  
DISPL: BBL-GAL  
REMARKS  
See Job Log

CUSTOMER

Murphy Corp  
Acid  
DATE 10-30-76

HALLIDURTON  
DIVISION

BILLED ON  
TICKET NO. 073503

## WELL DATA

NAME \_\_\_\_\_ TYPE \_\_\_\_\_  
THICKNESS \_\_\_\_\_ FROM \_\_\_\_\_ TO \_\_\_\_\_  
D: OIL \_\_\_\_\_ GPD. WATER \_\_\_\_\_ GPD. GAS \_\_\_\_\_ MCFO \_\_\_\_\_  
OD: OIL \_\_\_\_\_ GPD. WATER \_\_\_\_\_ GPD. GAS \_\_\_\_\_ MCFO \_\_\_\_\_  
DATE \_\_\_\_\_ MUD TYPE \_\_\_\_\_ MUD WT. \_\_\_\_\_  
S \_\_\_\_\_ SET AT \_\_\_\_\_  
E TEMP. \_\_\_\_\_ PRESSURE \_\_\_\_\_

	NEW USED	SIZE	FROM	TO	WEIGHT	MAXIMUM PSI ALLOWABLE
CASING	14	5.5	KB	3440	15.5	
LINER						
TUBING						
OPEN HOLE					TOTAL DEPTH:	3440
PERFORATIONS			3195	3440		SHOTS/FT
PERFORATIONS						SHOTS/FT
PERFORATIONS						SHOTS/FT

### JOB DATA

CALLED OUT	ON LOCATION	JOB STARTED	JOB COMPLETED
DATE 4-27 TIME 2300	DATE 4-28 TIME 0830	DATE 4-28 TIME 0930	DATE 4-28 TIME

## TOOLS AND ACCESSORIES

TYPE AND SIZE	QTY.	MAKE
1R		
95		
3		
1000 1"	1	Holco

## MATERIALS

DENSITY \_\_\_\_\_ LD/GAL API  
 DENSITY \_\_\_\_\_ LD/GAL API  
 SIZE \_\_\_\_\_ LD \_\_\_\_\_  
 SIZE \_\_\_\_\_ LD \_\_\_\_\_  
 type *chloride* GAL. *2000* % *28*  
 GAL. \_\_\_\_\_ % \_\_\_\_\_  
 GAL. \_\_\_\_\_ % \_\_\_\_\_  
 TYPE \_\_\_\_\_ GAL. \_\_\_\_\_ IN \_\_\_\_\_  
 % \_\_\_\_\_ GAL. \_\_\_\_\_ IN \_\_\_\_\_  
 3D TYPE \_\_\_\_\_ GAL-LD \_\_\_\_\_ IN \_\_\_\_\_  
 4T TYPE \_\_\_\_\_ GAL-LD \_\_\_\_\_ IN \_\_\_\_\_  
 5ENT TYPE \_\_\_\_\_ GAL-LD \_\_\_\_\_ IN \_\_\_\_\_  
 6 \_\_\_\_\_ GAL-LD \_\_\_\_\_ IN \_\_\_\_\_  
 7INT TYPE \_\_\_\_\_ GAL-LD \_\_\_\_\_  
 8 TYPE \_\_\_\_\_ QTY. \_\_\_\_\_  
*1-5 28% p/1000 F8-2-25 B*  
*50 6.2% p/1000 P/100*

## PERSONNEL AND SERVICE UNITS

[illegible]DEPARTMENT Stimulation

### DESCRIPTION OF JOB

2000: Hal 28% sediments per F

JOB DONE THRU: TUBING ☐ . CASING ☐ ANNULUS ☐ . TBQ./ANN. ☐

**CUSTOMER**

REPRESENTATIVE\_0

## MALIBUWATON

**COPIES  
REQUESTED**

## CEMENT DATA

[illegible]

PRESSURES IN PSI

DISPLACEMENT

**MAXIMUM**

### FRACTURE GRADIENT

IT \_\_\_\_\_ 5-MIN. \_\_\_\_\_ 15-MIN.  
HYDRAULIC HORSEPOWER

**HYDRAULIC HORSEPOWER**

\_\_\_\_ AVAILABLE \_\_\_\_\_  
AVERAGE RATES IN BPM

DISPL. \_\_\_\_\_  
CEMENT LEFT IN PIPE \_\_\_\_\_

## REASON

## SUMMARY

PREFLUSH: 100% GAL.

LOAO & BKON, BUD-GAL. 48

TREATMENT, DOL.-GAL.

CEMENT SLURRY: GOL-GAL.

TOTAL VOLUME: 00L-0AL.

## VOLUMES

TYPE Tern + 0.1 1420

PAOI DBL-GAL

DISPL: GUL-GAL. 21

## REMARKS

**CUSTOMER**

HALLIBURTON

WORK ORDER CONTRACT  
AND PRE-TREATMENT DATAATTACH TO  
INVOICE & TICKET NO. 093803

DATE 4-28-77

HALLIBURTON SERVICES

YOU ARE HEREBY REQUESTED TO FURNISH EQUIPMENT AND SERVICEMEN TO DELIVER AND OPERATE

SAME AS AN INDEPENDENT CONTRACTOR TO: Murphy Oil Corp  
(CUSTOMER)

DELIVER AND SELL PRODUCTS, SUPPLIES, AND MATERIALS FOR THE PURPOSE OF SERVICING

40 LEASE E. P. U. SEC. 10 TWP. 28N RANGE 51E

P. U. COUNTY Pratt STATE Mont OWNED BY Sam P

THE FOLLOWING INFORMATION WAS FURNISHED BY THE CUSTOMER OR HIS AGENT

TYPE	NEW USED	WEIGHT	SIZE	FROM	TO	MAX. ALLOW. P.S.I.
CASING	4	15.5	5.5	AB	3440	
LINER						
TUBING						
OPEN HOLE						SHOTS/FT.
PERFORATIONS			295	3440		
PERFORATIONS						
PERFORATIONS						

TREATMENT: DATE TYPE MATERIALS

INSTRUCTIONS: TREAT THRU TUBING ☐ ANNULUS ☐ CASING ☐ TUBING/ANNULUS ☐ HYDRAULIC HORSEPOWER ORDERED

OR HIS AGENT STATES THE WELL IS IN PROPER CONDITION TO RECEIVE THE PRODUCTS, SUPPLIES, MATERIALS, AND SERVICES

THIS CONTRACT MUST BE SIGNED BEFORE WORK IS COMMENCED.

The above-named Customer agrees:

Halliburton in accordance with the rates and terms stated in Halliburton's current price lists.

Halliburton shall not be responsible for and Customer shall secure Halliburton against any liability for damage to property of Customer and of the well owner (from Customer), unless caused by the willful misconduct or gross negligence of Halliburton, this provision applying to but not limited to subsurface and surface damage arising from subsurface damage.

Customer shall be responsible for and secure Halliburton against any liability for reservoir loss or damage, or property damage resulting from subsurface pressure, control of the well and/or a well blowout, unless such loss or damage is caused by the willful misconduct or gross negligence of Halliburton.

Customer shall be responsible for and secure Halliburton against any and all liability of whatsoever nature for damages as a result of subsurface trespass, or on the nature thereof, arising from a service operation performed by Halliburton hereunder.

Customer shall be responsible for and secure Halliburton against any liability for injury to or death of persons, other than employees of Halliburton, or damage to property (including, but not limited to, injury to the well), or any damages whatsoever, irrespective of cause, growing out of or in any way connected with the discharge of radioactive material in the well hole, unless such damage shall be caused by the willful misconduct or gross negligence of Halliburton.

Halliburton makes no guarantee of the effectiveness of the products, supplies or materials, nor of the results of any treatment or service.

Customer shall, at its risk and expense, attempt to recover any Halliburton equipment, tools or instruments which are lost in the well and if such equipment, tools or instruments are not recovered, Customer shall pay Halliburton its replacement cost unless such loss is due to the sole negligence of Halliburton. If any equipment, tools or instruments are damaged in the well, Customer shall pay Halliburton the lesser of its replacement cost or the cost of repairs unless damage is caused by the sole negligence of Halliburton. In the case of equipment, tools or instruments for marine operations, Customer shall, in addition to the foregoing, be fully responsible for loss of or damage to any of Halliburton's equipment, tools or instruments which occurs at any time after delivery to the Customer at the landing until returned to the landing, unless such loss or damage is caused by the sole negligence of Halliburton.

In the event of the uncertainty of variable well conditions and the necessity of relying on facts and supporting services furnished by others, Halliburton is unable to guarantee the accuracy of any chart interpretation, research analysis, job recommendation or other data furnished by Halliburton. Halliburton personnel will use their best efforts in gathering such information and their best judgment in interpreting it, but Customer agrees that Halliburton shall not be responsible for any errors arising from the use of such information except where due to Halliburton's gross negligence or willful misconduct in the preparation or furnishing of it.

Halliburton warrants only title to the products, supplies and materials and that the same are free from defects in workmanship and materials. THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS OR OTHERWISE WHICH EXTEND BEYOND THOSE STATED IN THE PRECEDING SENTENCE. Halliburton's liability and Customer's exclusive remedy in any cause of action (whether in contract, tort, breach of contract or otherwise) arising out of the sale or use of any products, supplies or materials is expressly limited to the replacement of such products, supplies or materials on their return to Halliburton or, at Halliburton's option, to the allowance to the Customer of credit for the cost of such items. In no event shall Halliburton be liable for special, incidental, indirect, punitive or consequential damages.

In the event of Customer's default in the payment of Customer's account 60 days after date of invoice, such account will thereafter be subject to interest until paid. In the event it becomes necessary to employ an attorney to enforce collection of such account, Customer agrees to pay all collection costs and attorney fees in the amount of 20 per cent of the amount of the unpaid account.

Customer shall not be bound by any changes or modifications in this contract, except where such change or modification is made in writing by a duly authorized executive officer of Halliburton.

I HAVE READ AND UNDERSTAND THIS CONTRACT AND REPRESENT  
THAT I AM AUTHORIZED TO SIGN THE SAME AS CUSTOMER'S AGENT

SIGNED

DATE

TIME

CUSTOMER

The Fair Labor Standards Act of 1938, as amended, has been complied with in the production of goods and/or with respect to services furnished under this contract.

MER

# HALLIBURTON SERVICES JOB SUMMARY

FORM 2013 R-2

HALLIBURTON  
DIVISION

HALLIBURTON  
LOCATION

LEADERS

Glenview

BILLED ON  
TICKET NO.

225038

## WELL DATA

FIELD	Poplar	SEC.	TWP.	RNG.	COUNTY	STATE	MONTANA
FORMATION NAME	TYPE		NEW USED	WEIGHT	SIZE	FROM	TO
FORMATION THICKNESS	FROM	TO	CASING				MAXIMUM PSI ALLOWABLE
INITIAL PROD. OIL	OPD. WATER	OPD. GAS	LINER				
PRES. PROD. OIL	OPD. WATER	OPD. GAS	TUBING				
COMPLETION DATE	MUD TYPE	MUD WT.	OPEN HOLE				SHOTS/FT.
PACKER TYPE	SET AT		PERFORATIONS				
BOTTOM HOLE TEMP.	PRESSURE		PERFORATIONS				
MISC. DATA	TOTAL DEPTH		PERFORATIONS				

## TOOLS AND ACCESSORIES

TYPE AND SIZE	QTY.	MAKE
FLOAT COLLAR		
FLOAT SHOE		
GUIDE SHOE		
CENTRALISERS		
BOTTOM PLUG		
TOP PLUG		
HEAD		
PACKER		
OTHER		

## MATERIALS

TREAT. FLUID	DENSITY	LB/GAL. API
DISPL. FLUID	DENSITY	LB/GAL. API
PROP. TYPE	SIZE	LD.
PROP. TYPE	SIZE	LD.
ACID TYPE	GAL.	500
ACID TYPE	GAL.	1000
ACID TYPE	GAL.	
SURFACTANT TYPE	GAL.	6
NE AGENT TYPE	GAL.	IN
FLUID LOSS ADD. TYPE	GAL.-LB.	IN
GELLING AGENT TYPE	GAL.-LB.	IN
PHIC. RED. AGENT TYPE	GAL.-LB.	IN
BREAKER TYPE	GAL.-LB.	IN
BLOCKING AGENT TYPE	GAL.-LB.	
PERFAC BALLS TYPE	QTY.	
OTHER	FE 2	125
OTHER		

## JOB DATA

CALLED OUT	ON LOCATION	JOB STARTED	JOB COMPLETED
DATE 7-13-77	DATE 7-13-77	DATE 7-13-77	DATE 7-13-77
TIME 0300	TIME 0810	TIME	TIME

## PERSONNEL AND SERVICE UNITS

NAME	UNIT NO. & TYPE	LOCATION
G. J. Hede	1218	Glenview
G. H. Terres	3705	...
D. J. ...	8775	...
	8775	...

DEPARTMENT	CMT
DESCRIPTION OF JOB	Pump No. 8 into Disposal Well

JOB DONE THRU: TUBING ☒ CASING ☐ ANNULUS ☐ TOG. ANN. ☐

CUSTOMER REPRESENTATIVE	Roy Reede
HALLIBURTON OPERATOR	William P. Fick
COPIES REQUESTED	

## CEMENT DATA

STAGE	NUMBER OF BAGS	TYPE	API CLASS	BRAND	BULK SACKED	ADDITIONS	YIELD CU. FT./SK.	MIXED LBS./GAL.

## PRESSURES IN PSI

## SUMMARY

## VOLUMES

CIRCULATING	DISPLACEMENT	PRES. LOSS: DOL.-GAL.	TYPE
BREAKDOWN	MAXIMUM	LOAD & DRUM: DOL.-GAL.	PAQ: DOL.-GAL.
AVERAGE	FRACTURE GRADIENT	TREATMENT: DOL.-GAL.	DISPL: DOL.-GAL.
SHUT-IN INSTANT	5-MIN.	CEMENT SLURRY: DOL.-GAL.	
HYDRAULIC HORSEPOWER		TOTAL VOLUME: DOL.-GAL.	
ORDERED	AVAILABLE	USED	REMARKS
AVERAGE RATES IN BPM			
TREATING	DISPL.	OVERALL	
CEMENT LEFT IN PIPE			
FEET	REASON		

CUSTOMER



FORM 1908 R-2

A Division of Halliburton Company  
DUMER, OKLAHOMA 73331WORK ORDER CONTRACT  
AND PRE-TREATMENT DATAATTACH TO  
INVOICE & TICKET NO. 225058DISTRICT GlauvilleDATE 9-13-77

TO: HALLIBURTON SERVICES

YOU ARE HEREBY REQUESTED TO FURNISH EQUIPMENT, AND SERVICEMEN TO DELIVER AND OPERATE

THE SAME AS AN INDEPENDENT CONTRACTOR TO: Murphy Boop

(CUSTOMER)

AND DELIVER AND SELL PRODUCTS, SUPPLIES, AND MATERIALS FOR THE PURPOSE OF SERVICING

WELL NO. 7D LEASE EPLD SEC. \_\_\_\_\_ TWP. \_\_\_\_\_ RANGE \_\_\_\_\_FIELD Paplas COUNTY Lincoln STATE Montana OWNED BY State

THE FOLLOWING INFORMATION WAS FURNISHED BY THE CUSTOMER OR HIS AGENT

FORMATION NAME	TYPE	NEW USED	WEIGHT	SIZE	FROM	TO	MAX. ALLOW. P.S.I.
FORMATION THICKNESS	FROM	TO					
PACKER: TYPE	SET AT						
TOTAL DEPTH	MUD WEIGHT						
BORE HOLE							
INITIAL PROD: OIL _____ BPD, H <sub>2</sub> O _____ BPD, GAS _____ MCF							
PRESENT PROD: OIL _____ BPD, H <sub>2</sub> O _____ BPD, GAS _____ MCF							
CASING			12.5	5 1/2	3190	3545	
LINER							
TUBING			6.5	2 3/8	0	3443	
OPEN HOLE							SHOTS/FT.
PERFORATIONS							
PERFORATIONS							
PERFORATIONS							

PREVIOUS TREATMENT: DATE \_\_\_\_\_ TYPE \_\_\_\_\_ MATERIALS \_\_\_\_\_

TREATMENT INSTRUCTIONS: TREAT THRU TUBING ☒ ANNULUS ☐ CASING ☐ TUBING/ANNULUS ☐ HYDRAULIC HORSEPOWER ORDEREDPump 10 BBL H<sub>2</sub>O, 500 Gal solvent @ 1/2 BBL/min, 500 Gal HCl @ 1/2 BBL/min  
Then 1000 Gal HF @ 1/2 BBL/min

CUSTOMER OR HIS AGENT STATES THE WELL IS IN PROPER CONDITION TO RECEIVE THE PRODUCTS, SUPPLIES, MATERIALS, AND SERVICES

THIS CONTRACT MUST BE SIGNED BEFORE WORK IS COMMENCED

As consideration, the above-named Customer agrees:

- To pay Halliburton in accord with the rates and terms stated in Halliburton's current price lists.
- Halliburton shall not be responsible for and Customer shall secure Halliburton against any liability for damage to property of Customer and of the well owner (if different from Customer), unless caused by the willful misconduct or gross negligence of Halliburton, this provision applying to but not limited to subsurface damage and surface damage arising from subsurface damage.
- Customer shall be responsible for and secure Halliburton against any liability for reservoir loss or damage, or property damage resulting from subsurface pressure, losing control of the well and/or a well blowout, unless such loss or damage is caused by the willful misconduct or gross negligence of Halliburton.
- Customer shall be responsible for and secure Halliburton against any and all liability of whatsoever nature for damages as a result of subsurface trespass, or an action in the nature thereof, arising from a service operation performed by Halliburton hereunder.
- Customer shall be responsible for and secure Halliburton against any liability for injury to or death of persons, other than employees of Halliburton, or damage to property (including, but not limited to, injury to the well), or any damages whatsoever, irrespective of cause, growing out of or in any way connected with the use of radioactive material in the well hole, unless such damage shall be caused by the willful misconduct or gross negligence of Halliburton.
- Halliburton makes no guarantee of the effectiveness of the products, supplies or materials, nor of the results of any treatment or service.
- Customer shall, at its risk and expense, attempt to recover any Halliburton equipment, tools or instruments which are lost in the well and if such equipment tools or instruments are not recovered, Customer shall pay Halliburton its replacement cost unless such loss is due to the sole negligence of Halliburton. If Halliburton equipment, tools or instruments are damaged in the well, Customer shall pay Halliburton the lesser of its replacement cost or the cost of repairs unless such damage is caused by the sole negligence of Halliburton. In the case of equipment, tools or instruments for marine operations, Customer shall, in addition to the foregoing, be fully responsible for loss of or damage to any of Halliburton's equipment, tools or instruments which occurs at any time after delivery to Customer at the landing until returned to the landing, unless such loss or damage is caused by the sole negligence of Halliburton.
- Because of the uncertainty of variable well conditions and the necessity of relying on facts and supporting services furnished by others, Halliburton is unable to guarantee the accuracy of any chart interpretation, research analysis, log recommendation or other data furnished by Halliburton. Halliburton personnel will use their best efforts in gathering such information and their best judgment in interpreting it, but Customer agrees that Halliburton shall not be responsible for any damages arising from the use of such information except where due to Halliburton's gross negligence or willful misconduct in the preparation or furnishing of it.
- Halliburton warrants only title to the products, supplies and materials and that the same are free from defects in workmanship and materials. THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS OR OTHERWISE WHICH EXTEND BEYOND THOSE STATED IN THE IMMEDIATELY PRECEDING SENTENCE. Halliburton's liability and Customer's exclusive remedy in any cause of action (whether in contract, tort, breach of warranty or otherwise) arising out of the sale or use of any products, supplies or materials is expressly limited to the replacement of such products, supplies or materials on their return to Halliburton or, at Halliburton's option, to the allowance to the Customer of credit for the cost of such items. In no event shall Halliburton be liable for special, incidental, indirect, punitive or consequential damages.
- Upon Customer's default in the payment of Customer's account 60 days after date of invoice, such account will thereafter be subject to interest until paid. In the event it becomes necessary to employ an attorney to enforce collection of such account, Customer agrees to pay all collection costs and attorney fees in the amount of 20 per cent of the amount of the unpaid account.
- Halliburton shall not be bound by any changes or modifications in this contract, except where such change or modification is made in writing by a duly authorized executive officer of Halliburton.

I HAVE READ AND UNDERSTAND THIS CONTRACT AND REPRESENT  
THAT I AM AUTHORIZED TO SIGN THE SAME AS CUSTOMER'S AGENTSIGNED Kary Keadle CUSTOMERDATE 9-13-77TIME 0815 A.M. P.M.We certify that the Fair Labor Standards Act of 1938, as amended, has been complied with  
in the production of goods and/or with respect to services furnished under this contract.

CUSTOMER

WELL NO. 210 LEASE F P U TICKET NO. 22-054  
CUSTOMER Murphy Corp PAGE NO. 1  
JOB TYPE ANAL DATE 9-13-77

CHART NO.		TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMP		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
					T	C	TUBING	CASING	
1	0810								Arrived on Loc. + S.T. in Tank
	0802	1/2	1/2				400		STARTED Fresh Water
	0823	1	2				500		Increased Water Rate
	0825	3					800		Increased Rate
	0837	3	7 1/2				900		Pressure Increased
	0830	3					900		STARTED pumping Saline
	0832	3	11.9				1000		Pressure increased
	0834	3					900		STARTED pumping HCL H <sub>2</sub> O
	0844	1/2	11.9				800		DROPPED RATE
	0845	1/2					700		STARTED pumping HF <del>2</del> Acid
	0850	1/2					600		Pressure dropped
	0852	1/2					600		" "
	0858	1/2					550		" "
	1000	1/2					500		" "
	1004	1/2	14.6				500		Shut down for 15 min.
	1020	1/2					400		STARTED pumping <del>acid</del> <sup>water</sup>
	1035	1/2	21.7				400		STARTED pumping WATER
	1039	1/2	2.7				400		Shut down for 30 min.
	1110	1/2					300		Finished pumping water
	1143	1/2	25				250		Finished pumping
	1153						250		Shut in pressure after 10 min.

**CUSTOMER**



1 OF

NO.

225058

WELL NO. AND FAHM		COUNTY	STATE	DATE	
111		111	111	11-11-11	
CHARGE TO			OWNER	DUNCAN USE ONLY	
ADDRESS			CONTRACTOR	LOCATION	CODE
CITY, STATE, ZIP			SHIPPED VIA	LOCATION	CODE
DUNCAN USE ONLY			DELIVERED TO	LOCATION	CODE
			ORDER NO.	BULK MATERIAL DELIVERY TICKET NO.	B-
			TOTAL ACID-30 DAYS	WELL TYPE	CODE
			TYPE AND PURPOSE OF LOG		

TERMS: NET DUE BY THE 20TH OF FOLLOWING MONTH. INTEREST CHARGED AFTER 60 DAYS FROM DATE OF INVOICE.

PRICE REFERENCE	SECONDARY REF. OR PART NO.	CODE		DESCRIPTION	UNITS 1		UNITS 2		UNIT PRICE	AMOUNT	
		L	O		QTY.	MEAS.	QTY.	MEAS.			
R 200-317				1/2" x 1/2" x 1/2"	1	cu. ft.			1.00	1.00	00
R 200-001				1/2" x 1/2" x 1/2"	177	cu. ft.			1.00	177.00	00
R 200-002				1/2" x 1/2" x 1/2"	177	cu. ft.			1.00	177.00	00
R 200-003				1/2" x 1/2" x 1/2"	177	cu. ft.			1.00	177.00	00
R 200-004				1/2" x 1/2" x 1/2"	177	cu. ft.			1.00	177.00	00
R 200-005				1/2" x 1/2" x 1/2"	177	cu. ft.			1.00	177.00	00
R 200-006				1/2" x 1/2" x 1/2"	177	cu. ft.			1.00	177.00	00
R 200-007				1/2" x 1/2" x 1/2"	177	cu. ft.			1.00	177.00	00
R 200-008				1/2" x 1/2" x 1/2"	177	cu. ft.			1.00	177.00	00

WAS PERFORMANCE OF PERSONNEL SATISFACTORY? \_\_\_\_\_

x John J. ...  
Customer or His Agent

## TAX REFERENCES

SUB TOTAL

TAX

TAX

TAX

TOTAL

EXTRA COPY

**HALLIBURTON**

**WORK ORDER CONTRACT  
AND PRE-TREATMENT DATA**

ATTACH TO  
INVOICE & TICKET NO. 225486

DATE 1-23-78

HALLIBURTON SERVICES YOU ARE HEREBY REQUESTED TO FURNISH EQUIPMENT AND SERVICEMEN TO DELIVER AND OPERATE  
SAME AS AN INDEPENDENT CONTRACTOR TO: Murphy Oil Co. (CUSTOMER)  
DELIVER AND SELL PRODUCTS, SUPPLIES AND MATERIALS FOR THE PURPOSE OF SERVICING

40 LEASE E Poplar Unit SEC. \_\_\_\_\_ TWP. \_\_\_\_\_ RANGE \_\_\_\_\_  
E Poplar COUNTY Nowata STATE Mont OWNED BY Murphy

THE FOLLOWING INFORMATION WAS FURNISHED BY THE CUSTOMER OR HIS AGENT

ON	TYPE	NEW USED	WEIGHT	SIZE	FROM	TO	MAX. ALLOW. P.S.I.
ON	SS						
TYPE	FROM	TO					
DEPTH	MUD-WEIGHT						
LE							
PROD.	OIL	BPD. H <sub>2</sub> O	BPD. GAS	MCF			
PROD.	OIL	BPD. H <sub>2</sub> O	BPD. GAS	MCF			
TREATMENT	DATE	TYPE	MATERIALS				

NT INSTRUCTIONS: TREAT THRU TUBING ☒ ANNULUS ☐ CASING ☐ TUBING/ANNULUS ☐ HYDRAULIC HORSEPOWER ORDERED \_\_\_\_\_  
Spruce and Sulfate Carry

OR HIS AGENT STATES THE WELL IS IN PROPER CONDITION TO RECEIVE THE PRODUCTS, SUPPLIES, MATERIALS, AND SERVICES

THIS CONTRACT MUST BE SIGNED BEFORE WORK IS COMMENCED  
eration, the above-named Customer agrees:  
y Halliburton in accord with the rates and terms stated in Halliburton's current price lists.  
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fferent from Customer), unless caused by the willful misconduct or gross negligence of Halliburton, this provision applying to but not limited to subsurface  
ge and surface damage arising from subsurface damage.  
mer shall be responsible for and secure Halliburton against any liability for reservoir loss or damage, or property damage resulting from subsurface pressure,  
ontrol of the well and/or a well blowout, unless such loss or damage is caused by the willful misconduct or gross negligence of Halliburton.  
mer shall be responsible for and secure Halliburton against any and all liability of whatsoever nature for damages as a result of subsurface trespass, or an  
in the nature thereof, arising from a service operation performed by Halliburton hereunder.  
mer shall be responsible for and secure Halliburton against any liability for injury to or death of persons, other than employees of Halliburton, or damage  
erty (including, but not limited to, injury to the well), or any damages whatsoever, irrespective of cause, growing out of or in any way connected with the  
radioactive material in the well hole, unless such damage shall be caused by the willful misconduct or gross negligence of Halliburton.  
urton makes no guarantee of the effectiveness of the products, supplies or materials, nor of the results of any treatment or service.  
mer shall, at its risk and expense, attempt to recover any Halliburton equipment, tools or instruments which are lost in the well and if such equipment  
or instruments are not recovered, Customer shall pay Halliburton its replacement cost unless such loss is due to the sole negligence of Halliburton. If  
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on to the foregoing, be fully responsible for loss of or damage to any of Halliburton's equipment, tools or instruments which occurs at any time after de-  
to Customer at the landing until returned to the landing, unless such loss or damage is caused by the sole negligence of Halliburton.  
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urton warrants only title to the products, supplies and materials and that the same are free from defects in workmanship and materials. THERE ARE NO  
ANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS OR OTHERWISE WHICH EXTEND BEYOND THOSE STATED IN THE  
DIATELY PRECEDING SENTENCE. Halliburton's liability and Customer's exclusive remedy in any cause of action (whether in contract, tort, breach  
ranty or otherwise) arising out of the sale or use of any products, supplies or materials is expressly limited to the replacement of such products, supplies  
terials on their return to Halliburton or, at Halliburton's option, to the allowance to the Customer of credit for the cost of such items. In no event shall  
urton be liable for special, incidental, indirect, punitive or consequential damages.  
Customer's default in the payment of Customer's account 60 days after date of invoice, such account will thereafter be subject to interest until paid. In  
ent it becomes necessary to employ an attorney to enforce collection of such account, Customer agrees to pay all collection costs and attorney fees in the  
nt of 20 per cent of the amount of the unpaid account.  
urton shall not be bound by any changes or modifications in this contract, except where such change or modification is made in writing by a duly  
ized executive officer of Halliburton.

I HAVE READ AND UNDERSTAND THIS CONTRACT AND REPRESENT  
THAT I AM AUTHORIZED TO SIGN THE SAME AS CUSTOMER'S AGENT

SIGNED Donald Hagadone CUSTOMER

DATE 1-23-78

TIME 2:30 P.M.

at the Fair Labor Standards Act of 1938, as amended, has been complied with  
tion of goods and/or with respect to services furnished under this contract.

OMER



LIBRARY OF THE  
U.S. DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
DENVER, COLORADO 80202

Cylinder

BILLED ON  
TICKET NO. 225486

RNA.

RNG.	COUNTY	Roosevelt		STATE		Mont.
	NEW USED	WEIGHT	SIZE	FROM	TO	MAXIMUM PSI ALLOWABLE
CASING	N	12	5 1/2	960	980	
LINER						
TUBING	U	1.5	2 1/2	KB	960	
OPEN HOLE	3P				980	SHOTS/FT.
PERFORATIONS				965	966	
PERFORATIONS						
PERFORATIONS						

### JOB DATA

CALLER OUT	ON LOCATION	JOB STARTED	JOB COMPLETED
DATE 1-23-78	DATE 1-23-78	DATE 1-23-78	DATE 1-23-78
TIME 10:30	TIME 11:30	TIME 15:00	TIME 18:00

## PERSONNEL AND SERVICE UNITS

[illegible]

DEPARTMENT Cust  
DESCRIPTION OF JOB Squid & Arrowed Surf  
C 29.

JOB DONE THRU: TUDING ☒ CASINO ☐ ANNULUS ☐ TBO./ANN. ☐

CUSTOMER REPRESENTATIVE **X** Gerald Hagadone

HALLIDURTON  
OPERATOR *H-27ad* COPIES  
REQUESTED

### CEMENT DATA

INNER BAGS	TYPE	API CLASS	BRAND	BULK BAGGED	ADDITIVES	YIELD CU.FT./SK.	MIXED LBS./GAL.
00	Rug	C	KR210	B	29.0 CaCl <sub>2</sub>	1.15	15.8

PRESSURES IN PSI		SUMMARY		VOLUMES	
300	DISPLACEMENT	200	PREFLUSH: BBL-GAL.	10	TYPE
	MAXIMUM		LOAD & DRDN: BBL-GAL.		5 1/2 1 1/2
250	FRACTURE GRADIENT		TREATMENT: BBL-GAL.		PAD: BBL-GAL.
NT	5-MIN.	10-MIN.	CEMENT SLURRY: BBL-GAL.	21.5	DISPL: BBL-GAL.
HYDRAULIC HORSEPOWER		TOTAL VOLUME: BBL-GAL.		534	
AVAILABLE		USED		REMARKS	
AVERAGE RATES IN BPM				Free Job log	
DISPL.		OVERALL			
CEMENT LEFT IN PIPE					
REASON					

**CUSTOMER**

HALLIBURTON SERVICES  
JOB SUMMARY

HALLIBURTON  
DIVISION

DENVER

HALLIBURTON  
LOCATION

Glendive

BILLED ON  
TICKET NO. 225487

FORM 1012 R-2

WELL DATA

FIELD	E. Poplar Unit	SEC.	TWP.	RNG.	COUNTY	Roosevelt	STATE	Mont
FORMATION NAME	TYPE							
FORMATION THICKNESS	FROM	TO						
INITIAL PROD. OIL	OPD. WATER	OPD. GAS	MCPD					
PRESENT PROD. OIL	OPD. WATER	OPD. GAS	MCPD					
COMPLETION DATE	MUD TYPE	MUD WT.						
PACKER TYPE	Baker	R-4	SET AT	6.50				
BOTTOM HOLE TEMP.	PRESSURE							
MISC. DATA	TOTAL DEPTH							

CASING	NEW USED	WEIGHT	SIZE	FROM	TO	MAXIMUM PSI ALLOWABLE
4	17	52	KB	780		
LINER						
TUBING	U	6.5	2 7/8	KB		
OPEN HOLE						SHOTS/FT.
PERFORATIONS	2 1/2"					700 701 4
PERFORATIONS						
PERFORATIONS						

JOB DATA

CALLER OUT	ON LOCATION	JOB STARTED	JOB COMPLETED
DATE 1-24-78	DATE 1-24-78	DATE 1-24-78	DATE 1-26-78
TIME 7:00	TIME 7:30	TIME 8:00	TIME 15:00

PERSONNEL AND SERVICE UNITS

NAME	UNIT NO. & TYPE	LOCATION
D. Hystad	8730	Glendive
K. Finnell		
A. Wimbarger	9824	Glendive
R. Kumbel		

DEPARTMENT C-7

DESCRIPTION OF JOB SQUELLET

JOB DONE THRU: TUBING ☒ CASING ☐ ANNULUS ☐ TBG./ANN. ☐

CUSTOMER REPRESENTATIVE X Donald Hystad

HALLIBURTON OPERATOR Hystad COPIES REQUESTED

CEMENT DATA

STAGE	NUMBER OF SACKS	TYPE	API CLASS	BRAND	DULK SACKED	ADDITIVES	YIELD CU.FT./BK.	MIXED LBS./GAL.
1	100	P13	G	KNAUER	B	290 C.C.I	1.15	15.8

PRESSURES IN PSI

SUMMARY

VOLUMES

CIRCULATING	DISPLACEMENT	3.25	PRESLUSH: BBL-GAL	5	TYPE	EP131 1120
BREAKDOWN	12100	MAXIMUM	1000	LOAD & BKDN: BBL-GAL.	PAD: BBL-GAL.	
AVERAGE	FRACURE GRADIENT	800	TREATMENT: BBL-GAL.	DISPL: BBL-GAL.		
SHUT-IN INSTANT	5 MIN.	15 MIN.	CEMENT SLURRY: BBL-GAL.	20.5		

HYDRAULIC HORSEPOWER

TOTAL VOLUME: BBL-GAL.

REMARKS

ORDERED AVAILABLE USED

AVERAGE RATES IN BPM

TREATING DISPL. OVERALL

CEMENT LEFT IN PIPE

FEET REASON

CUSTOMER

NO. B 561857

CUSTOMER ORDER NO.		WELL NO. AND FARM.		COUNTY	STATE
-78		4 D East Pipeless Unit		Beaverhead	Mont
CONTRACTOR		DELIVERED FROM	CODE	SERVICE TICKET NO.	
Hy Oil Corp.		Glendive, Mont	55530	225 482	
TO		DELIVERED TO			
Hy Oil Corp.		Location:			
ADDRESS		PREPARED BY			
		V. L. Hoffman			
DATE		RECEIVED BY			

[illegible]

ELSE OTHERWISE INDICATED

STOMER



WORK ORDER CONTRACT  
AND PRE-TREATMENT DATA

ATTACH TO  
INVOICE & TICKET NO. 225487

Cleedue

DATE 1-24-78

HALLIBURTON SERVICES YOU ARE HEREBY REQUESTED TO FURNISH EQUIPMENT AND SERVICEMEN TO DELIVER AND OPERATE

SAME AS AN INDEPENDENT CONTRACTOR TO: Murphy Oil Co. (CUSTOMER)  
DELIVER AND SELL PRODUCTS, SUPPLIES, AND MATERIALS FOR THE PURPOSE OF SERVICING

40 LEASE E. P. P. Unit SEC. TWP. RANGE

P. P. Unit COUNTY Nowata STATE OK OWNED BY Murphy

THE FOLLOWING INFORMATION WAS FURNISHED BY THE CUSTOMER OR HIS AGENT

IN	TYPE	NEW USED	WEIGHT	SIZE	FROM	TO	MAX. ALLOW. P.S.I.
IN	IS						
TYPE	FROM	TO					
TYPE	SET AT						
PTH	MUD WEIGHT						
E							
ROD:	OIL BPD, H <sub>2</sub> O BPD, GAS BPD, MCF						
PROD:	OIL BPD, H <sub>2</sub> O BPD, GAS BPD, MCF						

TREATMENT: DATE TYPE MATERIALS

INSTRUCTIONS: TREAT THRU TUBING ☒ ANNULUS ☐ CASING ☐ TUBING/ANNULUS ☐ HYDRAULIC HORSEPOWER ORDERED

Inject Through Perforations

CUSTOMER OR HIS AGENT STATES THE WELL IS IN PROPER CONDITION TO RECEIVE THE PRODUCTS, SUPPLIES, MATERIALS, AND SERVICES

THIS CONTRACT MUST BE SIGNED BEFORE WORK IS COMMENCED

By execution, the above-named Customer agrees:

1. Halliburton in accord with the rates and terms stated in Halliburton's current price lists.

2. Halliburton shall not be responsible for and Customer shall secure Halliburton against any liability for damage to property of Customer and of the well owner (different from Customer), unless caused by the willful misconduct or gross negligence of Halliburton, this provision applying to but not limited to subsurface gas and surface damage arising from subsurface damage.

3. Customer shall be responsible for and secure Halliburton against any liability for reservoir loss or damage, or property damage resulting from subsurface pressure, control of the well and/or a well blowout, unless such loss or damage is caused by the willful misconduct or gross negligence of Halliburton.

4. Customer shall be responsible for and secure Halliburton against any and all liability of whatsoever nature for damages as a result of subsurface trespass, or an injury in the nature thereof, arising from a service operation performed by Halliburton hereunder.

5. Customer shall be responsible for and secure Halliburton against any liability for injury to or death of persons, other than employees of Halliburton, or damage to property (including, but not limited to, injury to the well), or any damages whatsoever, irrespective of cause, growing out of or in any way connected with the use of radioactive material in the well hole, unless such damage shall be caused by the willful misconduct or gross negligence of Halliburton.

6. Halliburton makes no guarantee of the effectiveness of the products, supplies or materials, nor of the results of any treatment or service.

7. Customer shall, at its risk and expense, attempt to recover any Halliburton equipment, tools or instruments which are lost in the well and if such equipment or instruments are not recovered, Customer shall pay Halliburton its replacement cost unless such loss is due to the sole negligence of Halliburton. If Halliburton equipment, tools or instruments are damaged in the well, Customer shall pay Halliburton the lesser of its replacement cost or the cost of repairs unless such damage is caused by the sole negligence of Halliburton. In the case of equipment, tools or instruments for marine operations, Customer shall, in addition to the foregoing, be fully responsible for loss of or damage to any of Halliburton's equipment, tools or instruments which occurs at any time after delivery to Customer at the landing until returned to the landing, unless such loss or damage is caused by the sole negligence of Halliburton.

8. Use of the uncertainty of variable well conditions and the necessity of relying on facts and supporting services furnished by others, Halliburton is unable to guarantee the accuracy of any chart interpretation, research analysis, job recommendation or other data furnished by Halliburton. Halliburton personnel will use best efforts in gathering such information and their best judgment in interpreting it, but Customer agrees that Halliburton shall not be responsible for any gas arising from the use of such information except where due to Halliburton's gross negligence or willful misconduct in the preparation or furnishing of it.

9. Halliburton warrants only title to the products, supplies and materials and that the same are free from defects in workmanship and materials. THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS OR OTHERWISE WHICH EXTEND BEYOND THOSE STATED IN THE IMMEDIATELY PRECEDING SENTENCE. Halliburton's liability and Customer's exclusive remedy in any cause of action (whether in contract, tort, breach of warranty or otherwise) arising out of the sale or use of any products, supplies or materials is expressly limited to the replacement of such products, supplies or materials on their return to Halliburton or, at Halliburton's option, to the allowance to the Customer of credit for the cost of such items. In no event shall Halliburton be liable for special, incidental, indirect, punitive or consequential damages.

10. In the event of Customer's default in the payment of Customer's account 60 days after date of invoice, such account will thereafter be subject to interest until paid. In the event it becomes necessary to employ an attorney to enforce collection of such account, Customer agrees to pay all collection costs and attorney fees in the amount of 20 per cent of the amount of the unpaid account.

11. Halliburton shall not be bound by any changes or modifications in this contract, except where such change or modification is made in writing by a duly authorized executive officer of Halliburton.

I HAVE READ AND UNDERSTAND THIS CONTRACT AND REPRESENT THAT I AM AUTHORIZED TO SIGN THE SAME AS CUSTOMER'S AGENT

SIGNED Harold Fitzgerald CUSTOMER

DATE 1-24-78

TIME 7:30 A.M. P.M.

that the Fair Labor Standards Act of 1938, as amended, has been complied with in the production of goods and/or with respect to services furnished under this contract.

CUSTOMER

# BURTON SERVICES

## JOB LOG

WELL NO. 4-D LEASE 5 Duplex Unit TICKET NO. 225487  
 OPERATOR Murphy Oil Co. PAGE NO. \_\_\_\_\_  
 JOB TYPE SQUIP DATE 1-24-78

113 R-2

TIME	RATE (BPM)	VOLUME (DBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
			T	C	TUBING	CASING	
9:00							Run tubing S. + P.A.
10:18				1		500	Press Back and
10:50	3	10	1		2000	500	Establishing Rate
11:10	2 1/2	20.5	1		1500	500	Mix Cont
11:18	1 1/2	3	1		1250	500	Displace
11:27	1/4	1/2	1		1000	500	Stage
11:35	1/4	1/2	1		1000	500	Stage
11:43	1/4	1/2	1		1000	500	Stage
11:52	1/4	1/2	1		1000	500	Stage
12:25	1/4	1/4	1		800	500	Stage
12:58	1/4	1/4	1		800	500	Stage
13:27					800		Release
13:53			1		500		Pressure tubing

**CUSTOMER**

## HALLIBURTON SERVICES

# JOB LOG

WELL NO. 90

LEASE E. F. Page 11.7

TICKET NO. 225186

С. ДМБ

M. reply Q. / P.

PAGE NO

**JOB TYPE**

5. 116126

DATE 1-23-78

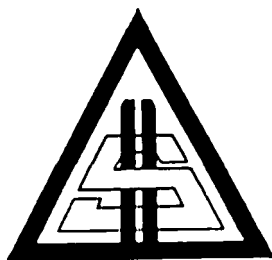
**FORM 10-1 R-2**

[illegible]

**CUSTOMER**

## INVOICE

Nº 3131



INDUSTRIAL SYSTEMS, INC.

P O. BOX 20176  
BILLINGS, MONTANA 59104

406-252-6671

DATE June 5, 1978

SOLD TO

SHIP TO

Murphy Oil  
Box 547  
Poplar, MT 59255

Same

*A-D*

P. O. NO.	TERMS	DATE SHIPPED	SHIPPED VIA
Verbal	net 30	5-30-78	UPS

QUAN. SHIPPED	BACK ORDER	DESCRIPTION	UNIT PRICE	AMOUNT
1		Tungsten Carbide Seal insert face for seal drawing CP-SP-57138		
1		Tungsten Carbide Rotating element to be relapped.		
		Lot Price		299.81
		UPS		2.01
		Incoming UPS		<u>2.11</u>
				303.93
		ORDER COMPLETE		
		THANK YOU		

Please pay from invoice: No statement will be rendered unless requested. No credit will be allowed for any merchandise returned unless authorized. All accounts not paid in 30 days will be subject to a 1½% per month service charge. The Annual percentage rate for this charge is 18%.

MURPHY, D. L. Co.

PAID BY W.H. Hyatt Corp. By Kay Keede DATE 7-21-77  
Authorized Signature

### DATES AND PROGRESS OF WORK

CUSTOMER MARSHALL CO. INC. 4-D.  
 LEASE E.P.M. S.W.D. WELL NUMBER \_\_\_\_\_  
 Referred Little Tools and Services Under Terms and Conditions Set Forth on Reverse Side.  
 Approved By Ray Reed Authorized Signature \_\_\_\_\_





## REPORT OF WATER ANALYSIS

From Murphy Oil Corporation  
Poplar, Montana

Analysis Date 6-2-77

Sample Marked 4-D S.W.D.

### MILLIGRAMS PER LITER

Chloride (as NaCl).....	115,000
Total Hardness (as CaCO <sub>3</sub> ) .....	3,000
Calcium Hardness (as CaCO <sub>3</sub> ) .....	2,300
Total Alkalinity (as CaCO <sub>3</sub> ) .....	M-330
Acidity to Phenolphthalein (as CaCO <sub>3</sub> ) .....	150
Sulfate (as Na <sub>2</sub> SO <sub>4</sub> ) .....	53
Total Iron (as Fe).....	2.3
Suspended Solids .....	
Precipitated By Sulfate (as BaSO <sub>4</sub> ) .....	
Turbidity (SiO <sub>2</sub> ).....	70

pH ..... 6.8

Specific Gravity .....

ed

R.J. Gray

Analyst

**NALCO CHEMICAL COMPANY**  
**VISCO CHEMICALS**

P. O. BOX 87 • SUGAR LAND, TEXAS 77478

ademarks of Nalco Chemical Company.

Form S-29



# ANALYTICAL SERVICE LABORATORY REPORT MICROBIOLOGICAL ANALYSIS

Company Murphy Oil Corporation Date 6-30-77

Plant Date Received Lab. 6-21-77

Address Poplar, Montana

Sampling Point Date Sample Number  
I 4-D S. W. D. 6-5-77 77V-524  
II  
III

## FIELD INOCULATED (Colonies/ml.)

	SAMPLE I	SAMPLE II	SAMPLE III
<i>Desulfovibrio</i> (Sulfate Reducing Bacteria)	1-10		
<i>Total Aerobic Bacteria</i> ← O.K.	Less Than 1000		

## REMARKS

Sample I

Sample II

Sample III

R. J. Gray (3)  
D. C. Johnson

E. S. Sittman

fg

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**NALCO CHEMICAL COMPANY**  
REGIONAL ANALYTICAL LABORATORIES

2111 E. Dominguez St.  
Carson, CA 90745

6216 W. 66th Place  
Chicago, Illinois 60638

Box 16A  
Paulsboro, NJ 08066

Box 87  
Sugar Land, TX 77478

1-75011



# ANALYTICAL SERVICE LABORATORY REPORT WATER ANALYSIS

Company: MURPHY OIL CORPORATION  
POPLAR, MONTANA  
DIST.21

Date Printed 13-Nov-80.  
Analysis No. 80VI708,A  
Date Sampled 11/03/80  
Date Received 11/13/80

Sample Marked: E.P.U. 4-D

## \*\*\*WATER ANALYSIS\*\*\*

DISSOLVED SOLIDS			RESULTS AS COMPOUNDS	
CATIONS	mg/l	meq/l		mg/l
Sodium,Na(calc.)	43400.	1890.		
Calcium,Ca	1000.	50.0	as CaCO3	2500.
Magnesium,Mg	194.	16.0	as CaCO3	800.
Barium,Ba	.0	.0	as BaSO4	.0
Sum of Cations	44600.	1950.		
ANIONS				
Chloride,Cl	68000.	1920.	as NaCl	112000.
Sulfate,SO4	1550.	32.4	as Na2SO4	2300.
Carbonate,CO3			as CaCO3	
Bicarbonate,HCO3	317.	5.2	as CaCO3	260.
Sum of Anions	69900.	1950.		
TDS CALCULATED	114000.			
Total Iron,Fe	.5	.0	as Fe	.5
Acid to Phen,CO2	58.1	1.3	as CaCO3	132.

## OTHER PROPERTIES

pH (units) 6.4  
Spec Gravity 1.070  
Turbidity (Jtu) 30.0

## CaCO3 STABILITY (Index)

@ 70F  
@ 120F  
@ 170F

## CaSO4 SOLUBILITY (meq/l)

Remarks:

5 R. J. GRAY  
M. R. OLSON

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## NALCO CHEMICAL COMPANY REGIONAL ANALYTICAL LABORATORIES

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Chicago, Illinois 60638

Box 16A  
Paulsboro, NJ 08066

Box 87  
Sugar Land, TX 77478

DEC 1 1980

COMPANY: Murphy Oil Corporation

Attachment

REPORT NO: 83C-349

DATE: 3/15/83

COUPON NUMBER

WEIGHT OF DEPOSIT (mg)

02868	104.6
03001	97.5
03024	65.6
03025	34.0
03650	86.2
03651	76.1
03652	52.2



# ANALYTICAL LABORATORY REPORT COUPON REPORT

Company Murphy Oil Corporation  
Address Poplar, Montana

Date 3/15/83  
Report No. 83C-349  
Page 2 of 2

<u>COUPON LOCATION</u>	<u>PERIOD EXPOSED</u>	<u>CHEMICAL IN USE</u>	<u>COUPON NUMBER</u>	<u>CORROSION RATE (mpy)</u>	<u>TYPE OF CORROSION</u>
5-D	2/03/83 to 3/10/83	Visco 3410	03024	0.7	
6-D	2/03/83 to 3/10/83	Visco 3410 & Visco 1111	03001	3.7	Pitting

$$\text{MPY} = \frac{(\text{Area factor}) \times (\text{wt. loss in mg})}{(\text{Days exposure})}$$

One mpy = 0.001 inch per year

Form S-4 A

NALCO CHEMICAL COMPANY  
ANALYTICAL LABORATORIES

Form PS-108 (40M 12-82)

P. O. Box 220  
Long Beach, CA 90801

1927 NoHe Drive  
Paulsboro, NJ 08066

Box 87  
Sugar Land, TX 77478

1801 Diehl Road  
Naperville, IL 60566



# ANALYTICAL LABORATORY REPORT *File* COUPON REPORT

Company Murphy Oil Corporation  
Address Poplar, Montana

Date 3/15/83  
Report No. 83C-349  
Page 1 of 2

COUPON LOCATION	PERIOD EXPOSED	CHEMICAL IN USE	COUPON NUMBER	CORROSION RATE (mpy)	TYPE OF CORROSION
Courchene SWD	9/30/82 to 3/08/83	Visco 3901	03650	1.9	General Etch
Lillian SWD	9/30/82 to 3/08/83	Visco 3901 & Visco 1111	01936	14.0	Pitting
Hull Creek Treater	9/30/82 to 3/08/83	Visco 3901	02170	0.3	
— 1-D East Line	2/03/83 to 3/10/83	Visco 3410	03025	0.8	
— 1-D West Line	2/03/83 to 3/10/83	Visco 3410	02868	1.7	General Etch
— 3-D	2/03/83 to 3/10/83	None	03651	5.0	General Etch
— 4-D	2/03/83 to 3/10/83	Visco 3410	03652	1.2	General Etch

$$\text{MPY} = \frac{(\text{Area factor}) \times (\text{wt. loss in mg})}{(\text{Days exposure})}$$

One mpy = 0.001 inch per year

4cc: H. A. Pederson (W/C)  
/mkh

Form S-4A

NALCO CHEMICAL COMPANY  
ANALYTICAL LABORATORIES

Form PS-108 (4DM 12-82)

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Long Beach, CA 90801

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Paulsboro, NJ 08066

Box 87  
Sugar Land, TX 77478

1801 Dicht Road  
Naperville, IL 60566



ANALYTICAL  
LABORATORY REPORT  
COUPON REPORT

Company Murphy Oil Corporation  
Address Poplar, Montana

Date 5/10/83  
Report No. 83C-605

COUPON LOCATION	PERIOD EXPOSED	CHEMICAL IN USE	COUPON NUMBER	CORROSION RATE (mpy)	TYPE OF CORROSION
I-D West Line	3/10/83 to 5/05/83	Visco 3410	03017	1.6	General Etch
3-D	3/10/83 to 5/05/83	None	03016	0.8	
4-D	3/10/83 to 5/05/83	Visco 3410	03015	0.9	
5-D	3/10/83 to 5/05/83	Visco 3410	03011	0.4	
6-D	3/10/83 to 5/05/83	Visco 1111 & Visco 3410	03012	3.4	Pitting

4cc: H. A. Pederson  
DJK

$$\text{MPY} = \frac{(\text{Area factor}) \times (\text{wt. loss in mg})}{(\text{Days exposure})}$$

/dg

One mpy = 0.001 inch per year

Form 5-4

NALCO CHEMICAL COMPANY  
ANALYTICAL LABORATORIES

Form PS-106 (40M 12-82)

P. O. Box 220  
Long Beach, CA 90801

1927 Nolte Drive  
Paulsboro, NJ 08066

Box 87  
Sugar Land, TX 77478

1801 Diehl Road  
Naperville, IL 60566



*F. A. L.*

# ANALYTICAL LABORATORY REPORT

>> COUPON REPORT <<

Company: MURPHY OIL CORPORATION  
Address: POPLAR, MONTANA

Print date: 6/14/83  
Report No. 83C-783

Page 1 of 1

COUPON LOCATION -----	EXPOSURE PERIOD -----	CHEMICAL IN USE -----	COUPON NUMBER -----	CORROSION RATE (mpy) -----	TYPE OF CORROSION -----
3-D	05/05/83 to 06/08/83	VISCO 3410	04129d	0.8	
1-D WEST LINE	05/05/83 to 06/08/83	VISCO 3410	04129d	1.0	Gen. Etch
4-D	05/05/83 to 06/08/83	VISCO 3410	04130d	1.5	Pitting
5-D	05/05/83 to 06/08/83	VISCO 3410	04150d	0.5	
6-D	05/05/83 to 06/08/83	VISCO 3410 & VISCO 1111	04126d	1.3	Gen. Etch

d See Deposit Weight Attachment

NALCO CHEMICAL COMPANY  
ANALYTICAL LABORATORIES

Form PS-108 (40M 12-82)

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Long Beach, CA 90801

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Sugar Land, TX 77478

1801 Diehl Road  
Naperville, IL 60566





# ANALYTICAL LABORATORY REPORT

>> COUPON REPORT <<

Company: MURPHY OIL  
Address: POPULAR, MONTANA

Print date: 11/ 1/83  
Report No. 83C-1527

Page 1 of 1

COUPON LOCATION	EXPOSURE PERIOD	CHEMICAL IN USE	COUPON NUMBER	CORROSION RATE (mpy)	TYPE OF CORROSION
3-D	08/05/83 to 10/26/83	NONE	01698d	1.1	Gen. Etch
4-D	08/05/83 to 10/26/83	VISCO 3410	01697d	2.3	Pitting
5-D	08/05/83 to 10/26/83	VISCO 3410	01693d	1.2	Pitting
6-D WATER DISPOSAL	08/05/83 to 10/26/83	VISCO 1111 & VISCO 3410	01694d	1.5	Pitting
LILLIAN SWD	10/04/83 to 10/26/83	VISCO 1111 & VISCO 3410	06935	1.7	Gen. Etch

d See Deposit Weight Attachment

NALCO CHEMICAL COMPANY  
ANALYTICAL LABORATORIES

Form PS-108 (40M 12-82)

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Naperville, IL 60566



File

# ANALYTICAL LABORATORY REPORT

>> COUPON REPORT <<

Company: MURPHY OIL CORPORATION  
Address: POPLAR, MONTANA

Print date: 2/ 3/84  
Report No. 34C-102

Page 1 of 1

COUPON LOCATION	EXPOSURE PERIOD	CHEMICAL IN USE	COUPON NUMBER	CORROSION RATE (mpy)	TYPE OF CORROSION
3-D	10/26/83 to 01/26/84	VISCO 3410	01666d	0.7	
4-D	10/26/83 to 01/26/84	VISCO 3410	04074d	12.8	Pitting
5-D SWD	10/26/83 to 01/26/84	VISCO 3410	04202d	0.4	
6-D SWD	10/27/83 to 01/26/84	VISCO 1111 ε VISCO 3410	04315d	0.5	

\*\* See Note Attachment  
d See Deposit Weight Attachment

NALCO CHEMICAL COMPANY  
ANALYTICAL LABORATORIES

Form PS-108 (40M 12-82)

Box 220  
Fach, CA 90801

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Box 87  
Sugar Land, TX 77478

1801 Diehl Road  
Naperville, IL 60566



*Filer*

# ANALYTICAL LABORATORY REPORT

>> COUPON REPORT <<

Company: MURPHY OIL  
Address: POPULAR, MONTANA

Print date: 3/12/84  
Report No. 34C-313

Page 1 of 1

COUPON LOCATION -----	EXPOSURE PERIOD -----	CHEMICAL IN USE -----	COUPON NUMBER -----	CORROSION RATE (mpy) -----	TYPE OF CORROSION -----
40 SWD	01/26/84 to 03/01/84	VISCO 3410	041700	4.7	Gen. Etch

d See Deposit Weight Attachment

NALCO CHEMICAL COMPANY  
ANALYTICAL LABORATORIES

Form PS-109 (40M 12-82)

P. O. Box 220  
Long Beach, CA 90801

1927 Nolte Drive  
Paulsboro, NJ 08066

Box 87  
Sugar Land, TX 77478

1801 Diehl Road  
Naperville, IL 60566

RECEIVED 3/30/84



# ANALYTICAL LABORATORY REPORT

>> COUPON REPORT <<

Company: MURPHY OIL COMPANY  
Address: POPLAR, MONTANA

Print date: 3/30/84  
Report No. 84C-423

Page 1 of 1

COUPON LOCATION	EXPOSURE PERIOD	CHEMICAL IN USE	COUPON NUMBER	CORROSION RATE (mpy)	TYPE OF CORROSION
4D SWD ↑ File	03/01/84 to 03/21/84	VISCO 3410 & VISCO 4902	04138d	1.7	Gen. Etch

d See Deposit Weight Attachment

**NALCO CHEMICAL COMPANY**  
**ANALYTICAL LABORATORIES**

Form PS-108 (40M 12-82)

P. O. Box 220  
Long Beach, CA 90801

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Paulsboro, NJ 08066

Box 87  
Sugar Land, TX 77478

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Naperville, IL 60566



File H-D

# ANALYTICAL LABORATORY REPORT

>> COUPON REPORT <<

Company: MURPHY OIL  
Address: POPULAR, MONTANA

Print date: 5/ 7/84  
Report No. 84C-640

Page 1 of 1

COUPON LOCATION	EXPOSURE PERIOD	CHEMICAL IN USE	COUPON NUMBER	CORROSION RATE (mpy)	TYPE OF CORROSION
SWD	01/26/84 to 04/30/84	VISCO 3410	04132a	3.2	Pitting
	03/21/84 to 04/30/84	VISCO 3410	14229+	0.4	
SWD	01/26/84 to 04/30/84	VISCO 3410	04153d	1.1	Gen. Etch
SWD	01/26/84 to 04/30/84	VISCO 1111 to VISCO 3410	04163a	0.7	

\* See Coupon Note Attachment  
d See Deposit Weight Attachment

NALCO CHEMICAL COMPANY  
ANALYTICAL LABORATORIES

Form PS-108 (40M 12-82)

0  
CA 00801

1927 Nolle Drive  
Parsippany, N.J. 08066

Box 87  
Sunnyside, TX 77478

1801 Diehl Road  
Nannerville, IL 60568



# ANALYTICAL LABORATORY REPORT

Company: MURPHY OIL  
Address: POPULAR, MONTANA

Print date: 5/ 7/84  
Report No. 84C-640

Note Attachment

Coupon Number	Note
-----	-----
14229	> 316 S.S.

NALCO CHEMICAL COMPANY  
ANALYTICAL LABORATORIES

Form PS-108 (40M 12-82)

1927 Nolte Drive

Box 87

1801 Diehl Road



# ANALYTICAL LABORATORY REPORT

Company: MURPHY OIL  
Address: POPULAK, MONTANA

Print date: 5/ 7/84  
Report No. 84C-640

Attachment

## >> SCALE DEPOSIT REPORT <<

Coupon Number	Weight (in mg)
04132	126.6
04153	333.1
04163	146.1

NALCO CHEMICAL COMPANY  
ANALYTICAL LABORATORIES

Form PS-108 (40M 12-82)

10  
CA 90901

1927 Nolte Drive  
Baltimore, MD 21206

Box 87  
Sugarland, TX 77478

1801 Diehl Road  
Memphis, TN 38119



file

# ANALYTICAL LABORATORY REPORT

>> COUPON REPORT <<

Company: MURPHY OIL CORPORATION  
Address: POPLAR, MONTANA

Print date: 6/20/84  
Report No. 84C-891

Page 1 of 1

COUPON LOCATION -----	EXPOSURE PERIOD -----	CHEMICAL IN USE -----	COUPON NUMBER -----	CORROSION RATE (mpy) -----	TYPE OF CORROSION -----
✓ 4-D SWD	04/30/84 to 06/06/84	VISCO 3410	14091+	0.2	
5-D SWD	04/30/84 to 06/06/84	VISCO 3410	04301d	7.0	Localized

+ See Coupon Note Attachment  
d See Deposit Weight Attachment

NALCO CHEMICAL COMPANY  
ANALYTICAL LABORATORIES

Form PS-108 (40M 12-82)

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Box 87  
Sugar Land, TX 77478

1801 Diehl Road  
Naperville, IL 60566





## REPORT OF WATER ANALYSIS

Company      Murphy Oil Corporation  
                 Poplar, Montana

Date August 20, 1985  
Analysis No.  
Sampling Date August 20, 1985  
Date Sample Rec'd. August 20, 1985

Sample Marked    4-D

### DISSOLVED SOLIDS

Cations	mg/l	meq/l
Sodium, Na (Calc.) .....	35,972	1,564
Calcium, Ca .....	2,000	100
Magnesium, Mg .....	729	60
Barium, Ba .....	0	0
Cations Total .....	38,701	1,724

### RESULTS AS COMPOUNDS

	mg/l
as NaCl .....	
as CaCO <sub>3</sub> .....	5,000
as CaCO <sub>3</sub> .....	3,000
as BaSO <sub>4</sub> .....	0

Anions		
Chloride, Cl .....	59,486	1,678
Sulfate, SO <sub>4</sub> .....	1,927	40
Carbonate, CO <sub>3</sub> .....	0	0
Bicarbonate, HCO <sub>3</sub> .....	390	6
Anions Total .....	61,803	1,724

as NaCl .....	98,000
as Na <sub>2</sub> SO <sub>4</sub> .....	2,850
as CaCO <sub>3</sub> .....	0
as CaCO <sub>3</sub> .....	320

Total Dissolved Solids (Calc.) ...	100,504
Total Iron, Fe .....	0.2
Acidity to Phenolphthalein, CO <sub>2</sub> ..	132

as Fe .....	0.2
as CaCO <sub>3</sub> .....	300

### OTHER PROPERTIES

pH .....	5.9
Specific Gravity .....	
Turbidity (JTU) .....	
Sulfide, as H <sub>2</sub> S .....	(present)

CaCO<sub>3</sub> STABILITY INDEX  
@ 70° F.  
@ 120° F.  
@ 160° F.  
Method of Stiff & Davis

Remarks:    cc:    D. Kasowski  
                       D. Brown

/mg

**NALCO CHEMICAL COMPANY**  
**VISCO CHEMICALS**

P. O. BOX 87 • SUGAR LAND, TEXAS 77478



TRETOLITE DIVISION

369 Marshall Avenue / Saint Louis, Miss. 63119  
(314) WO 1-3500/TWX 910-760-1660/Telex 44-2417

WATER ANALYSIS REPORT

ANY Murphy Oil Co. ADDRESS Poplar, Mont. DATE: \_\_\_\_\_  
E. #4 S. W. Disp. DATE SAMPLED 11-8-76 ANALYSIS NO. \_\_\_\_\_

Analysis

Mg/L

\*Meq/L

1. PH 7.0
2. H<sub>2</sub>S (Qualitative) Pos.
3. Specific Gravity 1.090
4. Dissolved Solids \_\_\_\_\_
5. Suspended Solids \_\_\_\_\_
6. Phenol Alkalinity (CaCO<sub>3</sub>) \_\_\_\_\_
7. M. O. Alkalinity (CaCO<sub>3</sub>) 1.9 x 100
8. Bicarbonate (HCO<sub>3</sub>) 1.9 x 122
9. Chlorides (Cl) 15.5 x 4822
10. Sulfates (SO<sub>4</sub>) .7 x 1500
11. Calcium (Ca) 1.4 x 811.6
12. Magnesium (Mg) \_\_\_\_\_
13. Total Hardness (CaCO<sub>3</sub>) 1.9 x 2030
14. Total Iron (Fe) \_\_\_\_\_
15. Barium (Qualitative) \_\_\_\_\_
16. \_\_\_\_\_

HCO <sub>3</sub>	<u>232</u>	÷ 61	<u>4</u>	HCO <sub>3</sub>
Cl	<u>74741</u>	÷ 35.5	<u>2105</u>	Cl
SO <sub>4</sub>	<u>1050</u>	÷ 48	<u>22</u>	SO <sub>4</sub>
Ca	<u>1136</u>	÷ 20	<u>57</u>	Ca
Mg	<u>247</u>	÷ 12.2	<u>20</u>	Mg
	<u>3857</u>			
	<u>6 PPM</u>			
	<u>Neg.</u>			

\*Milli equivalents per liter

PROBABLE MINERAL COMPOSITION

	Compound	Equiv. Wt.	X	Meq/L	=	Mg/L
7 Ca ← HCO <sub>3</sub>						
Ca (HCO <sub>3</sub> ) <sub>2</sub>	81.04	<u>4</u>		<u>324</u>		
3 Mg → SO <sub>4</sub>						
Ca SO <sub>4</sub>	68.07	<u>22</u>		<u>1498</u>		
34 Na ← Cl						
Ca Cl <sub>2</sub>	55.50	<u>31</u>		<u>1721</u>		
Mg (HCO <sub>3</sub> ) <sub>2</sub>	73.17					
Mg SO <sub>4</sub>	60.19					
Mg Cl <sub>2</sub>	47.62	<u>20</u>		<u>952</u>		
Na HCO <sub>3</sub>	84.00					
Na <sub>2</sub> SO <sub>4</sub>	71.03					
Na Cl	58.46	<u>2054</u>		<u>120,077</u>		

Saturation Values	Distilled Water 20°C
Ca CO <sub>3</sub>	13 Mg/L
Ca SO <sub>4</sub> • 2H <sub>2</sub> O	2,090 Mg/L
Mg CO <sub>3</sub>	103 Mg/L

Solubility of CaSO<sub>4</sub> in this water is 6597 Mg/l, as determined by  
Stiff-Davis equation  $S = S_p \times F_1 \times F_2 \times F_3$ :

Respectfully submitted  
TRETOLITE COMPANY

Bob Anderson



TRETOLITE DIVISION

369 Marshall Avenue / Saint Louis, Missouri, 63109  
(314) WO 1-3500/TWX 910-760-1860/Telex 44-0317

STABILITY INDEX CALCULATIONS

(Stiff-Davis Method)

CaCO<sub>3</sub> Scaling Tendency

AMPLE

Sample Test No. \_\_\_\_\_

Company Murphy Oil Co. Sample Date 11-8-76

Address Poplar, Montana Submitted by Bob Anderson

Sample #4 S.W. D. Field \_\_\_\_\_

$$S. I. = pH - pCa - pAlk - K$$

where S. I. = stability index

pH = pH as measured on fresh sample

pCa = negative logarithm of calcium concentration

pAlk = negative logarithm of total alkalinity

K = constant, depends upon temperature and salt content

$$pH = \underline{7.0} \quad pCa = \underline{1.5} \quad pAlk = \underline{2.4}$$

CULATION OF IONIC STRENGTH AND K VALUE

$$Na \quad (\underline{47242}) \times (2.2 \times 10^{-5}) = \underline{1.039}$$

$$Ca \quad (\underline{1136}) \times (5.0 \times 10^{-5}) = \underline{.057}$$

$$Mg \quad (\underline{247}) \times (8.2 \times 10^{-5}) = \underline{.020}$$

$$Cl \quad (\underline{74741}) \times (1.4 \times 10^{-5}) = \underline{1.046}$$

$$HCO_3 \quad (\underline{232}) \times (0.8 \times 10^{-5}) = \underline{.002}$$

$$SO_4 \quad (\underline{1050}) \times (2.1 \times 10^{-5}) = \underline{.022}$$

$$TOTAL IONIC STRENGTH = \underline{2.186}$$

$$K = \underline{3.1} \quad @ \quad \underline{100} \quad ^\circ F.$$

$$K = \underline{2.0} \quad @ \quad \underline{160} \quad ^\circ F.$$

$$SI \text{ at } (\underline{100})^\circ = (\underline{7.0}) - (\underline{1.5}) - (\underline{2.4}) - (\underline{3.1}) \text{ or } \underline{0}$$

$$SI \text{ at } (\underline{160})^\circ = (\underline{7.0}) - (\underline{1.5}) - (\underline{2.4}) - (\underline{2.0}) \text{ or } \underline{1.1}$$

$$SI = 0 \text{ or water is relatively stable at } \underline{100} \quad ^\circ F.$$

arks: This water will tend to have CaCO<sub>3</sub> scaling tendency above 100° F.



## PIPE VALVE & FITTING COMPANY

CH  
E & WAREHOUSE  
IX 15765  
AKE CITY, UTAH 84115  
7249

P.O. BOX 5806, T.A.  
DENVER, COLORADO 80217  
289-5811

BRANCH OFFICE:  
P.O. BOX 2123  
BISMARCK, N. D. 58501  
701-258-7992

Date \_\_\_\_\_

# 4 - D

00 gal 2870 acid as follows:

00 gal F-40 (surfactant)

0 gal 2870 - soak 15 min

0 gal 2870 - soak - 15 min

0 gal F-40 (surfactant)

0 gal 2870 - soak 15 min

0 gal 2870 - soak - 15 min

low pump

Chuck Stevens

Rest # 2929

Dowell 3.17.77

PRODUCTION &  
INJECTION DATA

-----

SURFACE EQUIPMENT

4-D

Pairless pump has  $1\frac{1}{2}$ " shaft

Length shaft for 8 bowls =  $95\frac{3}{8}$ "

" " " 15 " = 147"

" " " 10 " =  $109\frac{3}{4}$ "

each bowl is  $7\frac{7}{16}$ " Long

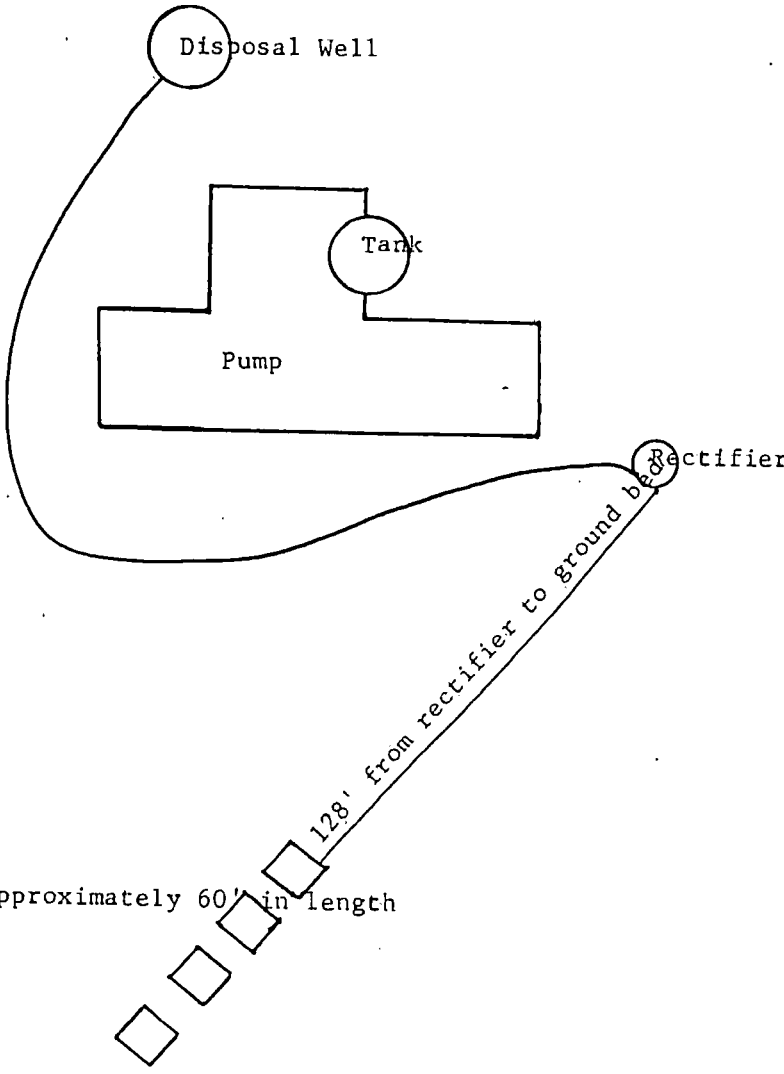
The bottom end turned down to  $1\frac{3}{16}$ " x  $5\frac{1}{2}$ " Long

The top End is thd'd w/  $1\frac{1}{2}$ " x  $5\frac{1}{2}$ " same thd

3-31-78 run 8 stage pump - was designed by Nelson  
to pump 8000 BFD @ 80% eff @ 500' press - we  
had wear in the impellers and only had 4500 BFD  
discharge.

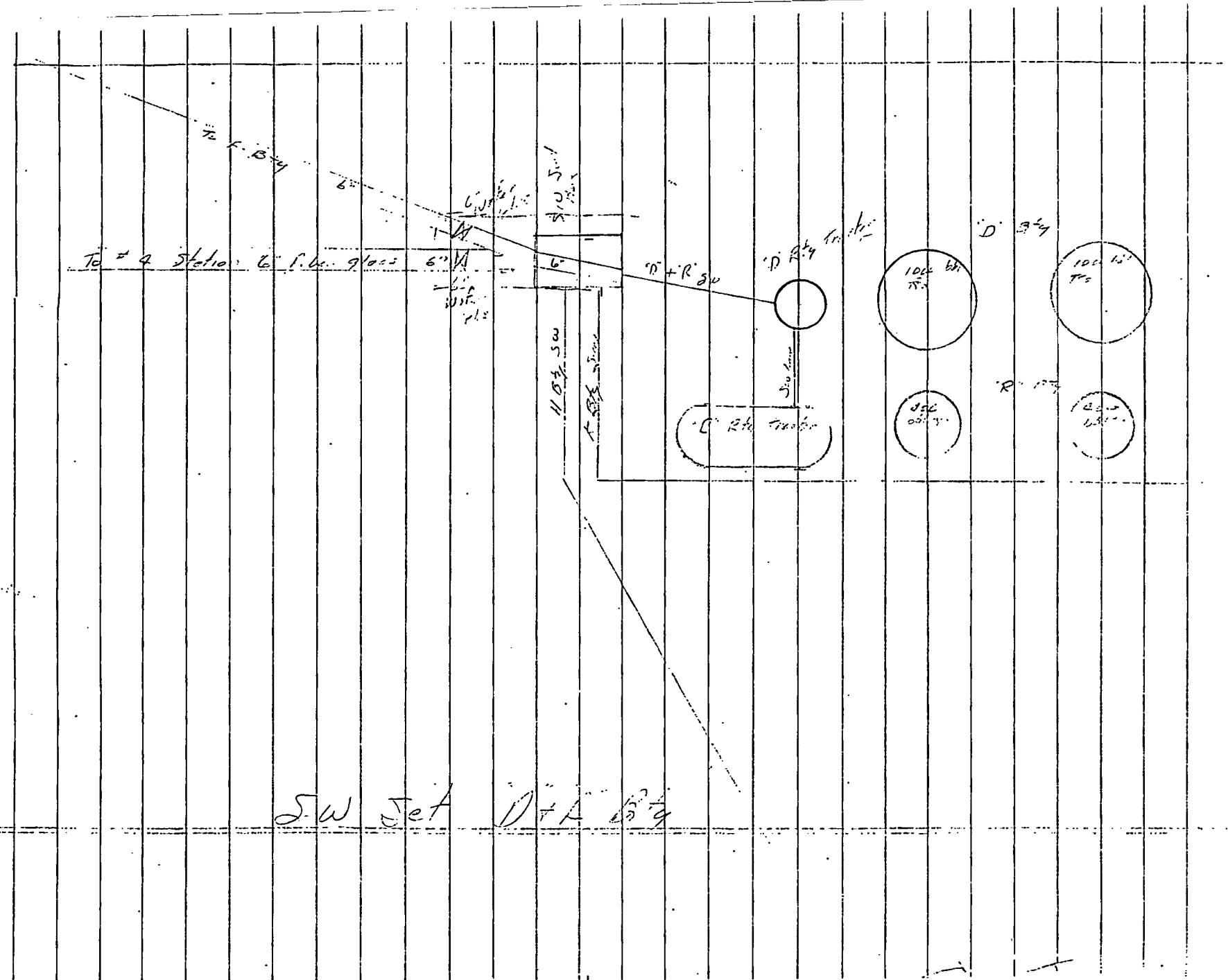
5-19 pulled pump - bent shaft - had to heat shaft to pull  
bowls - will order new shaft - will run 10 stage pump  
back.

oplar Unit No. 4-D  
ic Protection Installation  
1980

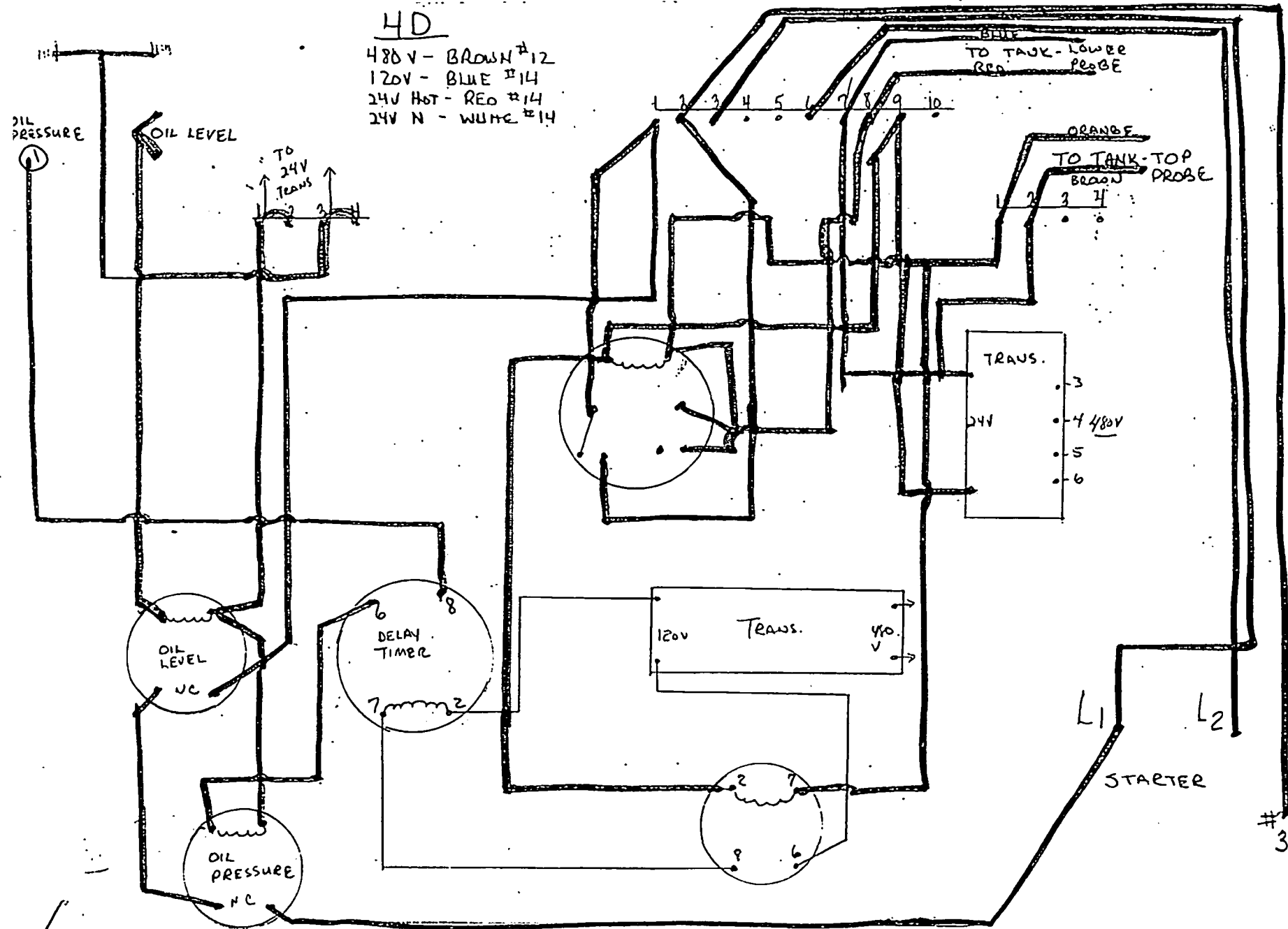


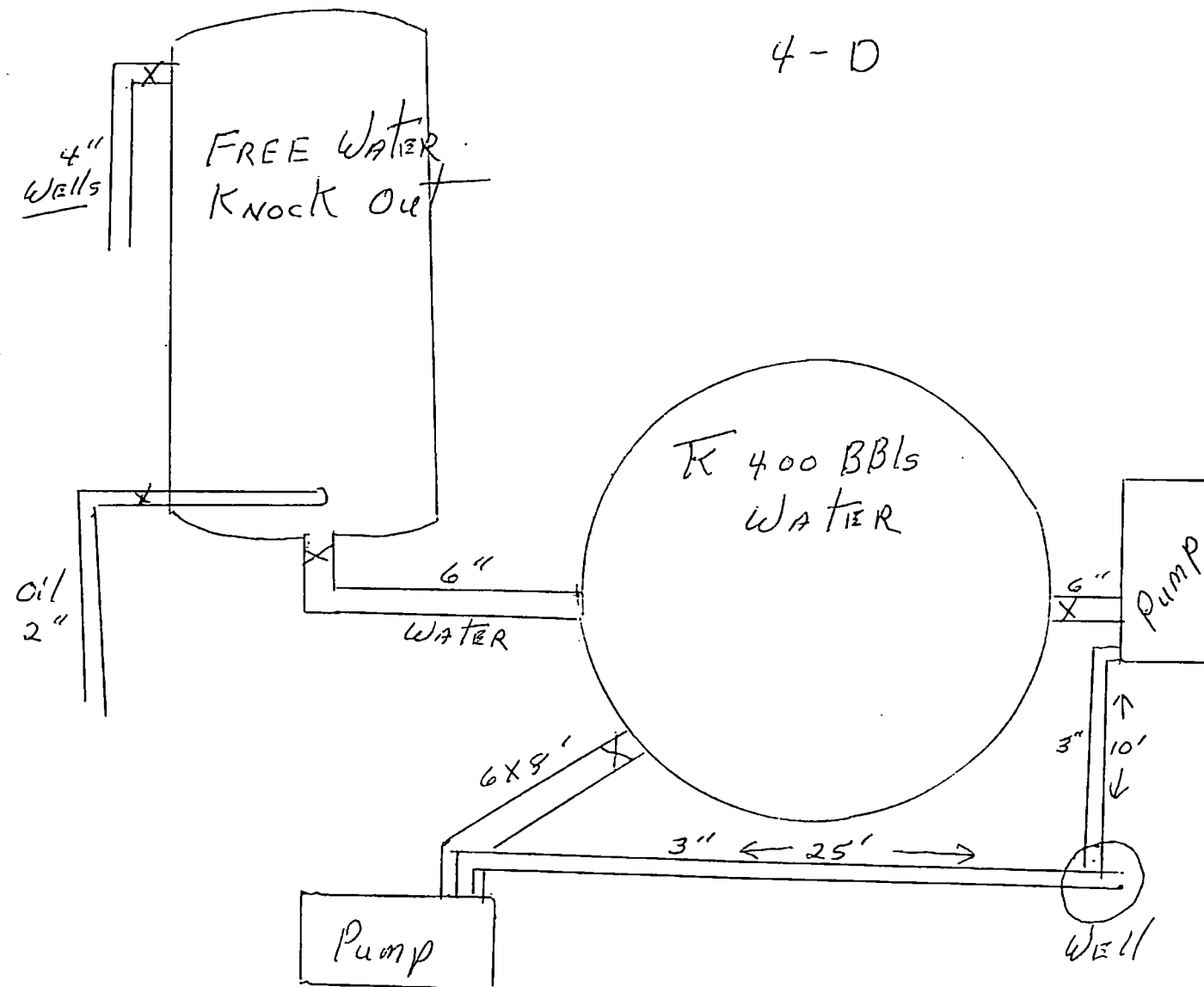
Ground Beds - Approximately 60' in length





SW Jet D+A 10° 34' 40"





3359 bbls water per day were disposed  
6800 bbls pit capacity

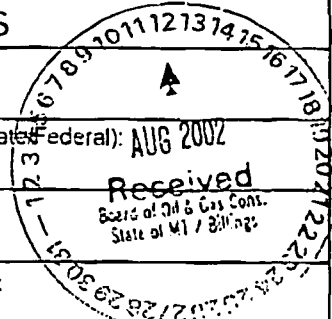


Submit In Quadruplicate To:

MONTANA BOARD OF OIL AND GAS CONSERVATION  
2535 ST. JOHNS AVENUE  
BILLINGS, MONTANA 59102

## SUNDRY NOTICES AND REPORT OF WELLS

Operator <b>SAMSON RESOURCES</b>		Lease Name: <b>HUBER</b>
Address <b>TWO WEST 2nd STREET</b>		Lease Type (Private/State/Federal): <b>PRIVATE</b>
City <b>TULSA</b>	State <b>OK</b>	Well Number: <b>4</b>
Zip Code <b>74103-3103</b>		Unit Agreement Name:
Telephone Number (918) <b>583-1791</b> Fax Number (918) <b>591-1702</b>		Field Name or Wildcat: <b>POPLAR EAST</b>
Location of well (1/4-1/4 section and footage measurements):  <b>C NW NE. 660 FNL, 1980 FEL</b>		Section, Township, and Range: <b>10-28N-51E</b>
If directionally or horizontally drilled, show both surface and bottom hole locations)		County: <b>ROOSEVELT</b>
API Number: <b>25 085 05047</b>	Well Type (oil, gas, injection, other): <b>Pre-UIC Program TA'd Disposal Well</b>	



Indicate below with an X the nature of this notice, report, or other data:

Notice of Intention to Change plans	<input type="checkbox"/>	Subsequent Report of Mechanical Integrity Test	<input type="checkbox"/>
Notice of Intention to Run Mechanical Integrity Test	<input type="checkbox"/>	Subsequent Report of Stimulation or Chemical Treatment	<input type="checkbox"/>
Notice of Intention to Stimulate or to Chemically Treat	<input type="checkbox"/>	Subsequent Report of Perforation or Cementing	<input type="checkbox"/>
Notice of Intention to Perforate or to Cement	<input type="checkbox"/>	Subsequent Report of Well Abandonment	<input type="checkbox"/>
Notice of Intention to Abandon Well	<input checked="" type="checkbox"/>	Subsequent Report of Pulled or Altered Casing	<input type="checkbox"/>
Notice of Intention to Pull or After Casing	<input type="checkbox"/>	Subsequent Report of Drilling Waste Disposal	<input type="checkbox"/>
Notice of Intention to Change Well Status	<input type="checkbox"/>	Subsequent Report of Production Waste Disposal	<input type="checkbox"/>
Supplemental Well History	<input type="checkbox"/>	Subsequent Report of Change in Well Status	<input type="checkbox"/>
Other (specify) _____	<input type="checkbox"/>	Subsequent Report of Gas Analysis (ARM 36.22.1222)	<input type="checkbox"/>

## Describe Proposed or Completed Operations:

Describe planned or completed work in detail. Attach maps, well-bore configuration diagrams, analyses, or other information as necessary. Indicate the intended starting date for proposed operations or the completion date for completed operations.

See attached procedure. Plugging will commence upon approval.

## BOARD USE ONLY

Approved AUG 15 2002  
DateOriginal Signed By  
**Steven P. Sasaki, Chief Field Inspector**

Name

Title

The undersigned hereby certifies that the information contained on this application is true and correct.

8/5/02

Date

Signed (Agent)

Robert F. Schaffitzel, District Engineer

Print Name &amp; Title

**Huber 4**  
Sec. 10-T28N-R51E  
Roosevelt County, MT  
API No. 25-085-05047  
**Plug and Abandonment Procedure**

1. MIRU service unit. NU on 10-3/4" surface casing.
2. PU 2-7/8" tubing and release tension pkr at +/- 824'. TOOH w/ tubing and pkr.
3. RU wireline and lubricator. TIH w/ 10-3/4" CIBP. Set CIBP @ 825'. TOOH w/ setting tool.
4. TIH w/ workstring and spot 30' cement plug from 825' to 795'.
5. Spot plugging fluid from top of cement to surface.
6. TOOH to 30' spot cement plug from 30' to surface.
7. Cut 10-3/4" casing off below plow depth, weld steel cap with nameplate.
8. Reclaim location.



085-05047